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I.

THE GROWTH OF NEW ENGLAND COLLEGES.

In the majority report of the Faculty of Arts and Sciences of Harvard University on the question of shortening the course of instruction at that institution, the statement is made, as an argument in favor of reducing the time necessary to obtain the degree of Bachelor of Arts, that the number of students in American colleges is falling behind the increase in the population of the country. This statement is apparently based on statistics for the decade from 1875–85, and the generalization has been made from those statistics. It is the purpose of the present article to prove that the figures for that particular decade do not represent the true state of the case, and that the generalization from those figures is not justifiable.

I wish to present the results of my investigations, so far as I have as yet been able to pursue them, in order to justify the diametrically opposite statement, namely, that the proportional increase in the number of college students has far exceeded the increase of population during a period sufficiently long to eliminate any accidental causes of increase or decrease in either factor. For this purpose I have taken the forty years from 1850 to 1890, a period at the beginning and end of which the country was in a state of prosperity. The beginning of this period was long enough before the Civil War not to be affected by any of its disturbing results, and the present time is so far removed from the financial disturbances of 1870–80, that their influence has little or no effect.

As one of the first results of my investigations, I found that

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the facts were exactly as stated in the majority report of the Harvard Faculty, if the figures for the decade 1875–85 alone were considered. On that basis there was very serious cause for alarm for the interests of higher education. The increase in college students for that period was very small; but there was a reason for this, and that reason is not far to seek. The years from 1870–78 were marked by a series of serious financial crises. Parents with but moderate means, in view of the gloomy financial outlook for the future, naturally did not feel justified in spending any large sums of money on the education of their sons. The effect was not felt in the colleges until a few years later, when those who would, under other circumstances, have been ready to enter college, failed to put in their appearance. Thus the number of students failed to increase in any considerable degree.

I am able to present here only the statistics for New England colleges; but it is with New England and New England colleges alone that this question of a change in the methods of education at Harvard has the closest connection. Moreover, the New England colleges, situated as they are in a region which has been longer settled than much of the rest of the country, would be more likely to show a decrease in life and growth than the institutions of a more newly settled territory, with the attending increase in energy and activity in all directions. I hope, however, to be able to supplement this paper by another, containing statistics to show that what has taken place in the New England colleges represents fairly what has taken place in the colleges of the whole United States.

The figures that I have collected have, in all but one or two instances, been taken directly from the official publications of the colleges themselves. They are therefore not open to the objections that have been raised against the statistics published by various boards of education. The figures for the population of New England are given in even thousands, and are taken from the United States census.

The first table shows the number of students in the various

New England colleges for the years 1850–51, 1860–61, 1870–71, 1880–81, and 1890–91. The figures represent the number of students in each college in the freshman, sophomore, junior, and senior classes, together with students pursuing special courses, and also those graduates who were candidates for the degrees of A.M. or Ph.D. The graduate students are included because they seem in every way to be fulfilling the same function as undergraduates, their training being liberal and not in any sense of the word professional. All students in professional schools, connected with the institutions enumerated, have been excluded from the list.

TABLE I.

NUMBER OF STUDENTS IN NEW ENGLAND COLLEGES.

	1850.	1860.	1870.	1880.	1890.
Amherst College	182	220	261	339	352
Bates College	....	....	78	134	146
Boston University	....	....	....	152	407[1]
Bowdoin College	120	198	121	157	185
Brown University	174	232	220	247	352
Colby University	72[1]	122	55	149	176
Dartmouth College	221	275	305	247	256
Harvard University	296	457	616	862	1464
Middlebury College	56	103	58	39	54
Trinity College	78	41	91	101	133
Tufts College	....	53	60	60	78
University of Vermont	101	101	42	76	139[2]
Wesleyan University	116	135	153	163	250
Williams College	179	233[1]	141	227	311
Yale University	432	521	522	641	936
Totals	2027	2691	2723	3594	5239
No. of population for 1 student	1346	1165	1280	1116	895
Population of New England in thousands	2728	3135	3487	4011	4692

It will be seen from this table that while in 1850 there was only one student for every 1346 of the population, that ratio gradually diminished, until, at the present time, there is one student for every 895 of the population. This increase in the

[1] From statistics kindly furnished by the secretary of the college.

[2] Statistics for 1889–90.

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number of students has been continuous, with the single marked exception of 1870, and the great disturbance caused by the Civil War at once explains that exception. Another method of representing this increase may serve to make it somewhat more apparent. We may represent the percentage increase of the two factors for each decade in a tabular form, as follows:

	New England Population.	Student Population.
Percentage increase from 1850–1860.....	14.9	32.7
" " " 1860–1870.....	11.2	1.2
" " " 1870–1880.....	15.0	32.0
" " " 1880–1890.....	17.0	45.5
Percentage increase from 1850–1890.....	72.0	158.0

It is apparent from the above figures that the proportion of college students is not only increasing, but increasing at a rapidly accelerating rate. The rate of increase of students in the New England colleges for the last decade is not only nearly three times that of the New England population, but is twice that of the population of the whole United States. There is, however, a factor in the above statistics which has a slight influence in unduly increasing this ratio, and making the facts appear somewhat more rose-colored than they really are.

In 1850 there were no women in the New England colleges, and in 1860 the same was the case. In 1870 I find one woman enrolled at Bates College, while in 1880, 83 women were attending five of the colleges. In 1890 that number had increased to 358, and six institutions had opened their doors to co-education. These students are, of course, drawn from a source from which it was impossible that they could come in 1850 or 1860, and when we are speaking of comparative increase of numbers they should be eliminated from the calculation. The number, however, is so small in comparison with the whole that the difference in the results is very slight. The figures for the colleges, omitting the women in the co-educational institutions, are given in Table II.

TABLE II.

NUMBER OF STUDENTS IN NEW ENGLAND COLLEGES, OMITTING WOMEN.

	1850.	1860.	1870.	1880.	1890.
Amherst College	182	220	261	339	352
Bates College	...	....	77	121	106
Boston University	....	....	....	114	179[1]
Bowdoin College	120	198	121	157	185
Brown University	174	232	220	247	352
Colby University	72[1]	122	55	136	140
Dartmouth College	221	275	305	247	256
Harvard University	296	457	616	862	1464
Middlebury College	56	103	58	39	43
Trinity College	78	41	91	101	133
Tufts College	....	53	60	60	78
University of Vermont	101	101	42	66	119[2]
Wesleyan University	116	135	153	153	227
Williams College	179	233[1]	141	227	311
Yale University	432	521	522	641	936
Totals	2027	2691	2722	3510	4881
No. of population for 1 student	1346	1165	1281	1143	961
Population of New England in thousands	2728	3135	3487	4011	4692

The difference caused by the elimination of the female students is seen to be very small. Expressing the results as before, we have the true percentage increase in the number of New England college students.

	POPULATION OF NEW ENGLAND.	MALE COLLEGE STUDENTS.
Percentage increase, 1850–60	14.9	32.7
" " 1860–70	11.2	1.2
" " 1870–80	15.0	29.0
" " 1880–90	17.0	39.0
Percentage increase, 1850–90	72.0	141.0

On the other hand there is a very large factor which should be added to these figures. The better class of scientific schools of to-day offer a training to young men which re-

[1] From statistics kindly furnished by the secretary of the college.

[2] Statistics for 1889–90.

quires not less, and very often more, mental application than is expended by the student in a classical college course. This education is, in almost all instances, not merely practical and technical, but involves the elements of a liberal training.

A student in such an institution as the Massachusetts Institute of Technology, for instance, may be pursuing exactly the same studies that a student at Harvard College may have elected. Moreover, the student at Harvard may not have pursued during his four years' course any studies which were not taken up by the student in the more strictly scientific institution. Both students graduate at the end of four years. Does not the A.B. of Harvard in this case represent the same quality and quantity of work done, as the B.S. received at the Institute of Technology? There seems to be no reason, then, why we should say that the one class of institutions is not the equal of the other, or that either does not stand for the highest form of education. Furthermore, the students in the scientific institutions are of the same age as college students, and spend the same length of time in their course of study. With one or two minor exceptions, four years is required in all these institutions to complete the course of study for a degree, and I have never heard of any proposition to shorten it.

The scientific schools have increased at an extraordinary rate during the forty years included in the above statistics, and without doubt a still greater increase in the colleges would have taken place if it had not been for these great additions to the numbers in the scientific schools. It is, then, to the influence of the scientific schools that we should rather look for the cause of the alleged decrease of college students, than to the enticement of quicker profits to be obtained in commercial life. If the college population were indeed decreasing, that problem might well be worth considering from the college standpoint.

For the reasons given above, it will be seen that the statistics for the scientific schools should also be included in any statistics representing the true increase of the number of those seeking a higher education in New England. These statistics

have been collected from the same authorities as those of the colleges, and are arranged in Table III.

TABLE III.

NUMBER OF STUDENTS IN NEW ENGLAND SCIENTIFIC SCHOOLS, OMITTING WOMEN.

	1850.	1860.	1870.	1880.	1890.
Chandler and Thayer Scientific Schools, Dartmouth College	....	42	77	50	72
Lawrence Scientific School, Harvard University	62	72	35	37	88
Massachusetts Institute of Technology	....	....	224	233	914[1]
Sheffield Scientific School, Yale University	21	38	125	190	350
Engineering Department, Tufts College	....	....	3	4	38
Worcester Polytechnic Institute	....	....	82	93	171
Totals	83	152	546	607	1633
Totals for Colleges as given in Table II	2027	2691	2722	3510	4881
Totals for Colleges and Scientific Schools	2110	2843	3268	4117	6514
No. of population to 1 student in Colleges and Scientific Schools	1293	1103	1066	974	722
Population of New England in thousands	2728	3135	3487	4011	4692

It is at once apparent that the gain during the forty years in the scientific schools alone has been enormous, amounting indeed to about 2000 per cent. The sum of the figures for the colleges and the figures for the scientific schools represents the true numerical increase in our higher educational institutions. We may, as before, represent the percentage increase for each decade as follows:

	POPULATION OF NEW ENGLAND.	MALE STUDENTS IN COLLEGES AND SCIENTIFIC SCHOOLS.
Percentage increase from 1850–60	14.9	34.7
" " " 1860–70	11.2	15.0
" " " 1870–80	15.0	25.9
" " " 1880–90	17.0	58.2
Percentage increase from 1850–90	72.0	209.0

[1] From the President's report.

This shows that the decrease in college students immediately after the war is completely offset by including scientific students, while the increase for the last decade assumes the extraordinary rate of fifty-eight per cent, or over three times the rate of increase of the population of New England and more than twice that of the whole country. At the same time the total increase for the forty years amounts to 209 per cent. which is also nearly three times the rate of increase of the population of New England. This represents, as I have endeavored to prove above, the true state of the case in the higher educational institutions of New England.

A consideration of these tables in regard to the growth of particular colleges is also interesting, and for this purpose Table II is best adapted. We find that Harvard leads the list with an increase of almost exactly five-fold in forty years. Yale has more than doubled its numbers in that period, while the lot of the other colleges has, with few exceptions, been very similar. They, too, have about doubled their numbers in forty years. If we exclude Harvard and Yale from the computation, we find that the smaller colleges have increased ninety-one per cent. during that time. Does a consideration of these figures uphold the oft-repeated statement that the smaller New England colleges are on the decline? Do not the figures for Amherst, Brown, Colby, Trinity, Wesleyan, or Williams, all of which are situated in, and draw most of their students from, slow-growing communities, show that they are increasing faster than their natural constituency? Can we expect colleges in Vermont to grow very rapidly, while the population of that state is remaining stationary, or even decreasing? Or, in the case of Dartmouth and the Maine colleges,—to which during the last forty years has also been added a new college to attract students, who would naturally have gone to the older institutions—can we expect a rapid increase while the communities in which they are situated, and which they represent, are nearly stationary?

Then, again, whence comes the wonderful increase at Harvard? By inspecting a table, given later on in this article, it will

be seen that this increase is derived almost entirely from New England. This great increase at Harvard is made up, for the greater part, of students who would naturally have gone to the other New England colleges, but have been attracted to Harvard by its size and the greater facilities offered by a larger institution. Moreover, even if this increase at Harvard had resulted in a slight decrease in the other colleges, it could not have been looked upon as a symptom of decline in the colleges at large, but merely as a concentration into one particular college. As a matter of fact, however, the smaller colleges have not only not decreased, but they show a positive increase, even under the influence of an institution so much larger than themselves.

I do not wish to convey the impression that size is the great and only advantage in a college. But inasmuch as it is admitted that the facilities and educational standing of all our colleges have enormously increased during this period of time, the fact that more students are attending the institutions collectively, shows that more education is being dealt out, so to speak, to the people.

There is, also, one other class of statistics which is interesting and necessary in order to show that the increase in the New England colleges should be compared with the population of New England alone. It might be urged that the increase of students, as shown by the statistics here given, is due to an influx of students from other parts of the country to New England colleges, attracted to them by their high standing, age, and reputation. In answer to this, I present Table IV.

We see that there is indeed a small increase in the percentage of students from outside of New England during the forty years, but that it is not nearly enough to account for the total gain in the colleges; and that while in 1850 70 per cent. of the students were from New England, in 1890 this had only been reduced to 63.5 per cent. Deducting, then, the students residing outside of New England, we find that the students in New England colleges, who come from New England

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homes, have increased 116 per cent. in the last forty years, and 180 per cent., if we include the scientific schools as before. Meanwhile, the New England population has increased but 72 per cent. This estimate does not include women. Even this does not represent the exact state of the case, but gives a

TABLE IV.

RESIDENCE OF STUDENTS IN NEW ENGLAND COLLEGES AND SCIENTIFIC SCHOOLS.

	1850.								1890.							
	N. E.	M.	S.	C.	W.	P.	F.	Total.	N. E.	M.	S.	C.	W.	P.	F.	Total.
Amherst	125	40	8	5	3	....	1	182	220	73	6	37	10	3	3	352
Bates	....	....	....	....	....	....	....	....	104	1	1	....	..	....	.. .	106
Boston	....	....	....	....	....	....	....	....	148	9	3	9	4	1	5	179
Bowdoin	114	2	....	1	....	....	3	120	179	1	....	5	....	..	....	185
Brown	133	20	14	3	2	....	2	174	290	23	8	10	4	3	5	352
Colby	71	1	....	....	....	....	....	72	134	3	....	1	1	....	1	140
Dartmouth	200	11	4	3	2	....	1	221	227	9	2	11	6	1	....	256
Harvard	251	20	16	6	1	....	2	296	913	277	30	136	68	20	20	1464
Middlebury	42	10	..	....	....	....	4	56	29	11	....	1	2	....	....	43
Trinity	34	32	8	3	....	....	1	78	75	39	2	12	2	3	....	133
Tufts	....	....	....	....	....	....	....	....	73	2	....	1	1	....	1	78
University of Vermont	79	17	1	..	..	....	4	101	103	12	....	2	....	....	2	119[1]
Wesleyan	59	46	1	5	2	....	3	116	126	88	2	3	1	3	4	227
Williams	82	88	2	4	....	....	3	179	122	134	2	36	13	1	3	311
Yale	233	120	55	15	9	....	7	432	336	368	37	110	59	11	15	936
Total for the Colleges	1423	407	109	45	12	....	31	2027	3088	1050	93	374	171	46	59	4881
Percentages	70.2	20.1	5.4	2.2	0.6	....	1.5	....	63.3	21.5	1.9	7.7	3.5	0.9	1.2	....
Chandler	....	....	....	....	....	....	....	....	69	....	.. .	1	2	....	....	72
Lawrence	41	9	6	2	....	....	4	62	56	17	7	5	2	....	1	88
Mass. Institute	....	....	....	....	....	..	....	....	609	86	33	97	37	16	36	914
Sheffield	10	8	....	1	....	....	2	21	118	114	9	63	30	10	6	350
Tufts (Scientific)	....	....	....	.	....	....	....	....	38	....	....	....	....	..	....	38
Worcester Polytech.	....	....	....	....	....	....	....	....	156	2	....	7	1	2	3	171
Total for the Scientific Schools	51	17	6	3	. ..	....	6	83	1046	219	49	173	72	28	46	1633
Total Scien. Schools and Colleges	1474	424	115	48	12	....	37	2110	4134	1269	142	547	243	74	105	6514
Percentages of Totals	69.9	20.1	5.2	2.4	0.6	...	1.7	....	63.5	19.5	2.2	8.4	3.7	1.1	1.6	....

N. E.—Me., N. H., Vt., Mass., R. I., Ct. M.—N. Y., Pa., N. J., Del., Md., D. C. S.—Va., W. Va., N. C., S. C., Ga., Fla., Ala., Miss., Tenn., Ky., La., Ark., Tex. C.—O., Mich., Ill., Ind., Wis. W.—All others except P.—Cal., Ore., Wash. F.—Foreign.

result lower than the truth, for the number of students from New England in colleges outside of New England is a factor which is not included. This number in 1850 was so insignificant that it may be totally disregarded; but in 1890 it has

1 Statistics for 1889–90.

assumed considerable proportions. Unfortunately I cannot give exact figures on this point, but some idea of the size of this factor is obtained by examining the catalogues of nine of the larger institutions in other states. In these alone I find 128 students enrolled from New England. In the Report of the Commissioner of Education for 1887–88, it is stated that 395 students from New England are attending colleges outside of those states. The addition of this number to the students from New England in the New England colleges would more than offset the decrease in percentage caused by the influx of students from the outside states.

A study of the changes in the different institutions as shown in Table IV will no doubt interest many, but to discuss them lies outside of the scope of the present article.

We thus see what is the true state of affairs in the New England colleges; and I am firmly convinced that this represents the state of the case for the whole country. When we consider the wonderful growth of such institutions as Columbia, the University of Michigan, and many other of the western state universities, and the fact that such large foundations as Cornell, Johns Hopkins, Vanderbilt, have sprung into existence within the last forty years, a small decrease, if it does exist, in the smaller colleges, will not alter the total result.

This alleged decrease has, as I have stated, been adduced as a strong argument for shortening the course at Harvard College. President Eliot has made frequent use of it in his arguments to that end, and Professor James, in his article in the January number of the *Harvard Monthly*, brings it up most prominently, and strongly deprecates the great decline of interest in higher education. If the other arguments for the proposed change have no firmer foundation than this one, surely the project has but a slender basis to rest upon.

ARTHUR M. COMEY.

TUFTS COLLEGE,
COLLEGE HILL, MASS.

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II.

THE PRIMARY SCHOOL IN THE MIDDLE AGES.

I.

The Abbé Alain has made a specialty of the history of education prior to the Revolution of 1789, in France. The volume before me[1] is one among several from his pen. It is not only a compendious summing up of the labors of others in the same field; it is also based upon original research, and has brought to light facts and figures that may not be ignored. The learned Abbé is indefatigable. The amount of reading that has gone into any of the least chapters of this modest book is sufficient voucher for the conscientiousness of the work done. The book will prove a revelation to many readers. Time was, and that not very long ago, when men were convinced that in France primary education began after the Revolution. They could see nothing previous to that epoch but an ignorant people deprived of all educational facilities for their children. That there was primary education, and gratuitous primary education, prior to 1789, is still to many an unknown fact. None the less is it true, nor will it be denied by any person presuming to know aught of the history of education in Europe. The spontaneous enthusiasm with which men, in different parts of France, found themselves working upon this subject is in itself quite phenomenal. I cannot undertake to make a complete record of the books that have been produced, teeming with scholarship and all unanimous in their results. But I will glance at a few of the more important works, knowing that it is within the scope of this REVIEW to supply the bibliography of all educational subjects.

[1] *L'Instruction primaire en France avant la Revolution, d'après les Travaux récents et des Documents inédits, par l'Abbé Alain.* Paris: Librairie de la Société Bibliographique, 1881, pp. xvi, 304.

The first, to my knowledge, to let in light on the subject of the education of the people, was the erudite Director of the National Library of Paris, M. Leopold Delisle. In his learned essay, called *Études sur la Condition de la Classe Agricole, et l'Etat de l'Agriculture en Normandie au moyen age* (Evreux, 1857), he dwelt upon the intellectual status of the peasantry of Normandy, and from original sources proved that people to have been well cared for as regards education. This was a side light, revealing an unexpected state of affairs. The book is a model of its kind, and has been largely so utilized in France. The next author to deal with the subject was M. Fayet. In 1858 he read before the Scientific Congress of France, his first memoir on the state of primary education in Auxerre during the past centuries. On the same occasion we find a similar memoir from the pen of M. Quantin.[2] Since that time M. Fayet has been indefatigable in collecting documents throwing additional light on the subject, and he has written some other valuable works concerning it.[3] In 1868 M. Maggiolo read at the Sorbonne his important essay, *De la Condition du Maître d'Ecole en Lorraine avant* 1789. Since then he has issued papers and volumes, all bearing on the question of primary education; but the main results of his investigations are to be found in valuable articles of his scattered through the pages of Buisson's *Dictionnaire de Pédagogie.*

Other works on the subject began to multiply with astonishing rapidity, and they furnish a striking example of what may be achieved when method and scholarship and untiring research are brought to bear upon a disputed or an ill-understood issue. Thirty years ago, men might inform you concerning the Colleges of the Jesuits, or the Oratorians, in France during the sixteenth and seventeenth centuries, but on the state of primary education, or whether it had existence

[2] Congrès Scientifique de France, 15e Session, tenu à Auxerre en 1858, T. II., pp. 115, 130.

[3] Among others, we may mention *Les Écoles de la Bourgogne, sous l'Ancien Régime*, Langres, 1875; *Recherches historiques et statistiques sur les Communes et les Écoles de la Haute-Marne*, Paris, 1879.

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at all prior to the Revolution, they were in total darkness. To-day, he would be a very daring or a very ignorant man, who would assert in presence of an intelligent audience in any part of the civilized world, that there was no primary education before the end of the eighteenth century. It was with the sole view of refuting this assertion that the whole library of educational literature just referred to was produced.

There is scarcely a province in France in which archives have not been overhauled; and facts and figures of all kinds have been pressed into service, and made to reveal results as astonishing as they were unlooked for. I shall not attempt an exhaustive enumeration of them. Beaurepaire has unfolded in three volumes the history of public instruction in the diocese of Rouen before 1789.[4] Quantin did the same for the department of the Yonne.[5] De Charmasse gave us invaluable documents bearing on the state of education in the ancient diocese of Autun.[6] Babeau brought to light the state of education in the department of Aube.[7] Armand Ravelet, the brilliant editor of *Le Monde* of Paris, in the introductory portions of his history of Blessed John Baptist de la Salle, summarized such of these as had been published at the time of writing, and added new matter, the result of his own research.[8] These are but a few of the many works that I might quote. They have all been utilized to the best advantage by the Abbé Alain.

I shall now endeavor to give some idea of the primary school in the Middle Ages as we find it outlined in such works and documents as have been mentioned.

[4] *Recherches sur l'Instruction publique, dans le Diocèse de Rouen, avant* 1789. Evreux, 1872, 3 vols., 8vo.

[5] *Histoire de l'Instruction primaire avant* 1789, *dans les Pays formant le Département de l'Yonne*, Auxerre, 1874.

[6] *État de l'Instruction primaire dans l'ancien Diocèse d'Autun pendant les XVII^e et XVIII^e Siècles*, Autun, 1871; second edition, Paris, 1878.

[7] *L'Instruction primaire dans les Campagnes avant* 1789. Troyes, 1875.

[8] *Histoire du Vénérable J. B. de la Salle, Fondateur de l'Institut des Frères des Écoles Chrétiennes*, Paris, 1874. Leon Gautier has made further additions to this portion of Ravelet's work in a new edition, which he edited in French and which was afterward translated into English by the late Kathleen O'Meara.

II.

There is no time in the history of the Christian Church when schools did not exist, now of one kind, now of another. Even down in the catacombs we find next to the little chapel the school-room for the catechumens, where they had their own teachers, distinct from those who gave instruction to the faithful.[9] In the East we need only mention the schools of Edessa and Alexandria. Wherever monastic institutions were established, schools flourished. Then there were the episcopal school, the cathedral school, the parish school, the burgh school, the rural school, schools attached to the hospitals for the poor,—all of which flourished at one or other time during the Middle Ages, throughout Christendom. In the graphic pages of Gregory of Tours (539–593), we read accounts of poisonings, murders, wars, intrigues at the royal court, while Chilperic is discussing Arianism and writing bad verses. But even in those lawless days there are indications that schools abounded. Chilperic turns grammarian and adds to the alphabet. Gregory says of him: "He sent orders to all the towns in his kingdom that the new alphabet be taught the children and that all books formerly written be effaced by the pumice stone, and written anew."[10] Again, Guibert of Nogent,—born about 1065,—writing of education in his day, says: "Somewhat before this time, and even since, there was so great scarcity of schoolmasters that hardly a single one could be seen in the country, and not many in the large towns; and even these were so backward in learning that they could not be compared with the class now (1110) to be found in the country schools." He witnesses a general revival of learning, —"seeing how on all sides men give themselves zealously to the study of grammar, and the ever-increasing number of schools renders knowledge easy of access to the rudest men.[11] From this time on evidences of the existence of the rural

[9] Padre Marchi, *Monumenti delle Arti Christiane Primitive nella Metropoli del Christianesimo*, Roma, 1844, p. 172.

[10] *Histoire*, V., 45.

[11] *History of the Crusades*, Preface.

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school become more frequent. M. Simeon Luce, in the course of his historical researches, feels bound to notice its existence in the fourteenth century. He says: "It is a grave mistake to imagine that there were no primary schools. Mention is made of rural schools in all the documents,—even in those in which we could least expect to find it,—and we can scarcely doubt that during the most stormy years of the fourteenth century most villages had their masters, teaching children reading, writing, and some arithmetic." Elsewhere the same author places before us a little scene, which he represents as occurring in 1377, that brings home to us the schoolmaster of that distant day finding difficulty in collecting his dues. Tassin de Loitre,—such is the master's name,—after drinking wine in the tavern of one Thomas D'Aunoy, refuses to pay. "And why not?" asks the hostess. "Because," replies Tassin, "you keep a cleric at my school for whom you owe me more than forty pence."[12] James Grant bears witness to a like multiplicity of schools in Scotland. "Our burgh schools," he says, "were not created by an act of Parliament; they had their origin in connection with the church, or were called into existence by the people themselves; but in whatever way they were founded, undoubtedly toward the end of the fifteenth century, schools were planted in every considerable town in Scotland; and the memorable Act of 1496, which has been so frequently quoted, assumes the existence of schools enough for supplying the people with knowledge of art, 'jure,' and 'perfect Latin.'"[13] Babeau, as the result of his researches, finds this state of affairs everywhere throughout France. "According to a great number of traditions," he says, "school was as much frequented, if not more so, formerly, than it is to-day."[14] As early as 1500, in the Middle Rhine province, there were schools every two miles. In the annals of Wesel, under the year 1494, there were charges for five teachers "to

[12] *Histoire de Bertrand du Guesclin et son Époque: La Jeunesse de Bertrand* (1320–1364), p. 15.

[13] *History of the Burgh and Parish Schools of Scotland*, p. 25.

[14] *L'Instruction primaire dans les Campagnes avant* 1789, p. 41.

instruct the youth in reading, writing, figures, and church music."[15]

Nor were the parents of mediæval days as indifferent to the education of their children as some would lead us to suppose. In the burghs and villages it was customary with fathers when binding out a young son to learn some trade, or hiring him out to do manual labor, to impose on the master conditions obliging him to send the child to school at certain times and seasons, and to procure him elementary instruction. Thus we read that in 1398 one Jean Milles, in apprenticing his son as servant to a certain William Louvet, stipulates that the master shall find the child in all the necessaries of life; among others so named are: "eating, drinking, shoes, clothing, and the being kept at school." Again, we read that in the year 1399, among the stipulations under which a minor is bound to his uncle for nine years, is one that the latter shall keep him at school during the whole time and shall see that he be tonsured—"*faire avoir couronne.*"[16] This solicitude extended to the time when they could no longer look after their education. A customary expression, found in the wills of merchants and artisans of the thirteenth century in regard to a child was: "*Volo quod sibi provideatur in scholis.*"[17]

The clergy were equally interested in the education of the children. In the rural districts they were wont to teach school themselves. And in the eighth century we find a bishop of Modena, when investing one of his priests with an important parish in the city, exhorting him "to be diligent in keeping school and educating the children."[18] A statute of the diocese of Rouen, of the year 1230, reads: "Let the clergy frequently exhort their parishioners to be careful and exacting in sending their children to school, since no one

[15] Janssen, *Geschichte des Deutschen Volkes*, I., pp. 23, 24.

[16] Tonsure admitted to the benefit of clergy, and was greatly sought after by parents for their children. We read that in the diocese of Rouen, from the Michaelmas of 1465 to the Michaelmas of 1466, there were tonsured 3954 children. Cf. Beaurepaire, *Recherches sur l'Instruction publique dans le Diocèse de Rouen, avant* 1789, pp. 53–62.

[17] Louis Guibert: *Dictionnaire de Pédagogie*, Art. *Limousin*, p. 1594.

[18] Cerruti, *Storia della Pedagogia in Italia*, p. 95.

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without instruction can be admitted to ecclesiastical benefices." [19]

Dederich Goelde, a Friar Minor, in a catechism which he wrote in 1470, thus speaks of the duties of parents toward their children: "Children should at an early age be sent to school, to honorable and worthy teachers, in order that they learn to be respectful and to save them from learning sin and bad habits in the streets." [20]

The Church was ever solicitous to maintain a supply of teachers, especially for the primary schools. The Council of Vaison, held in 529, decreed that, as was the general custom throughout Italy, each pastor should have in his house a class of young men studying for the priesthood. These young men were also engaged in teaching the small children. And so, in the ninth century, one of the questions to be asked when the bishop makes a visitation of his parish, is: "Whether the parish priest has with him a cleric who can teach school—*qui possit tenere scholam*—and assist him during the divine services." [21]

Riculf, the bishop of Soissons, admonishes his priests that among other things they pay particular attention to the scholars confided to them, and so teach them grammar that they will not destroy its fruit by inaccuracy in their conversation.[22] The good bishop, in asking his priests to find a method of teaching grammar by which pupils could speak correctly, was giving them a problem that very few of the schoolmasters of the present day have been able to solve. Later on, we find the statutes of Troyes decreeing that every parish priest shall have dwelling with him a cleric who shall teach school, and that said priest shall notify his parishioners to send their sons to the church to be properly instructed by this cleric.[23] Monasteries also supported a certain number of young

[19] Beaurepaire, op. cit., p. 53.
[20] Cf. Janssen, op. cit., I., p. 22.
[21] Hineman, *Statutes of* 852, XI., *Acts of the Province of Rheims*, I., p. 211.
[22] *Constitutions of the Diocese of Soissons*, 889, Art. xvi.
[23] Statutes of the Synod of Troyes, beginning of thirteenth century, cf. Babeau, op. cit., p. 8.

clerics with a view of their becoming teachers.[24] And in each large monastery there were generally two schools, one for those intending to enter the service of the Church, and the other for youths who were to continue to live in the world. In 817 the Council of Aix-la-Chapelle issued a decree which shows that masters were looked after in those early days. The decree reads: "If it should happen that the Brother who shall be charged with the care of the children should take little or no pains to instruct them, or should teach them other things than the subjects they ought to learn, or should have injured them in beating, let such be severely punished and removed from his office, and let this office be committed to some other Brother who shall keep the children innocent by the example of his life, and shall excite them to the performance of good deeds.[25] In the cities, as early as the eleventh century chapters took charge of the schools.[26]

The schoolmaster in the Middle Ages, we may infer, was, up to the fifteenth century, generally a young ecclesiastic or a cleric who dwelt with the pastor, helped him to sing the divine offices, aided him in many ways, and generally acted as sacristan. Flodoard tells us of such a cleric who, in order to study, or for some other purpose, was wont to steal the oil from the lamps burning before the relics of certain saints. His pupils, to whom he was teaching the psalter, informed on him. Even when not a cleric, the schoolmaster still performed certain functions in the church. Thus, we read the following articles of agreement, bearing date of July 25, 1699: "The said Gaillardet promises to teach reading, writing, cyphering, plain chant . . . . and obligates himself to ring the bells when storm, wind, or hail threatens, and to sing at benediction during Advent and Lent."[27] This formula embodies the traditional occupations of the schoolmaster for centuries. A similar document has been handed down to us from the Catholic

[24] Beaurepaire, op. cit., II., p. 28.

[25] *Statuts et Réglemens des petites Écoles de Grammaire de la Ville, Cité, Université, Faux-bourgs, et Banlieuë de Paris*, Paris, 1672, p. 214.

[26] Choron, 2d fascic., p. 54.

[27] L. Maggiolo, Art. *Bourgogne* in Buisson's *Dictionnaire de Pédagogie.*

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days of Scotland. It reads: "Master Harry Henryson is taken bound to be the good, true, and thankful servitor of the abbott and convent, and their successors, during his lifetime, and to attend to high mass and even-song at the high solemn festival times, with his surplice on."[28] In Paris, the master was expected "to preach on Palm Sunday in the Church of Notre Dame," or to pay out of his own purse for one to replace him.[29] At Pavilly, the master and his pupils were wont to attend mass on Sundays and solemn feasts in the chapel of the priory, where they chanted, and after mass both master and pupils dined with the prior.[30] The connection of the schoolmaster with singing in the church dates far back. Thus we read that when Charlemagne would change the system of music from the Gallic to the more efficient Roman system, he ordered all the schoolmasters to bring their antiphonaries to the chanters Theodore and Benedict to be corrected. Hence we generally find that the precentor of the cathedral is also the superintendent of schools. But we must not for a moment imagine that because of the offices he filled around the church, the schoolmaster of mediæval days was not held in honor. Such offices were not considered to be in any sense degrading. In those ages of faith it was thought an honor to be employed in the humblest manner with anything connected with the worship of God. "Men have been amused," says the Abbé Alain, "they have even feigned indignation, upon seeing our old schoolmasters both teachers, chanters, and sacristans. These good Christians took quite another view of the matter. The humble duties they performed in the church were great in their own eyes, and far from making them fall in the estimation of pupils and people, they added to their respect."[31] The General Assembly of the clergy of France, held in 1685, decreed that "the schoolmasters, clothed in their surplices, should be incensed in the church and should hold the place of honor above all the laity, even the aristocracy of

[28] Grant, *History of the Burgh and Parish Schools of Scotland*, p. 23.
[29] *Mémoires de la Société de l'Histoire de Paris*, T. xiii., p. 47.
[30] Beaurepaire, op. cit., p. 28. This dinner was called *Trude*.
[31] *L'Instruction Primaire en France avant la Revolution*, p. 132.

the parish.[32] The teacher was, according to Merlet, "after the pastor, the man of the parish. He saw the child born; he added his congratulations to the young couple pledging their love at the foot of the altar; he joined the last prayers uttered over the tomb that was closing down on some departed one."[33] He was the counselor of families, the confidant of secrets; when a letter was to be written, to him men and women had recourse. Not infrequently did he exercise some civic function in connection with that of teaching; now that of notary public, now that of registrar, now that of lawyer, now that of mayor of the town.[34] He was held in respect during life, and his memory was cherished after death. Nor was the schoolmistress less esteemed. There is pathos in this inscription bearing date of 1687: Catherine Ravigné, schoolmistress, was buried in presence of the chapter assembled, bearing with her the esteem of the whole congregation for her many offices of charity done to each and all.[35] Moreover, the schoolmaster enjoyed many privileges from the state. He was generally exempt from taxation and from military services.[36]

The manner in which he was paid varied with the locality. Sometimes he received a certain stipend from the burghers or the parish. Sometimes he taxed each pupil according to the subject studied. A document of the thirteenth century thus regulates the stipends of a grammarian: The town was to be responsible for the payment of all the younger children within its limits not studying grammar, and the master should exact from them no salary. From those outside, the sum of five sols was required. Those studying grammar should pay seven sols and six pence; and the grade extended to twenty sols.[37] The poor were always enabled to receive instruction gratuitously. A decree of the town of Worms in 1260 reads as follows: "No one should be excluded from the schools on account of indi-

[32] *Collection des Procès-verbaux du Clergé*, T. v., pp. 602–603.
[33] Merlet, iii.
[34] For these and other instances see Alain, op. cit., pp. 144, 145.
[35] C. Post, *Dictionnaire de Maine-et-Loire*, T. iii., p. 379.
[36] Babeau, *Le Village*, p. 231, sqq.
[37] Compayré, *Études Historiques et Documents inédits sur l'Albigeois*, Albi, 1841, p. 209.

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gence." Frequently the master received payment in kind, according to the local products. The Abbé Alain, after summing up the results of those authorities who entered into details on the subject, says: "All things considered, the position of our ancient educators, as regards ease and competence, was scarcely inferior to that of their important successors in our own days." [38]

III.

Such was the schoolmaster. What of the school itself? The primary or rural school was at first frequently held in the church, and it was only after a long struggle and reiterated synodal decrees that it became located elsewhere. Thus, Reginald of Durham, writing in the twelfth century, assures us that it was the custom to hold school in the church, and mentions the incident of a boy who thought he would get rid of all his school troubles by throwing the key of the church into a deep pool of the river flowing near by.[39] The Bishop of Bayeux in 1662 forbids the holding of schools in churches and chapels.[40] If the pastoral residence was large enough, school was held there. The children of all grades were assembled in the same room, and it was only after stringent legislation that the boys were separated from the girls. In the cities this arrangement was more readily brought about. The school-books were few. The child had one book containing the alphabet and his prayers in Latin. It was sometimes called the A B C; but because it bore the image of the Cross, it was more generally known as the *Croix de par Dieu*.[41] The next book placed in his hands was the psalms and offices for Sunday.[42] "It is undoubtedly to the study of the psalms," says de Charmasse, "made on the school benches, that we must attribute the universal taste which all classes of society in the Middle Ages

[38] *L'Instruction Primaire*, p. 133.

[39] James Grant, *History of the Burgh and Parish Schools of Scotland*, p. 5.

[40] *Lettre Pastorale*, p. 56. The little book on Method attached to this Letter, is rare and valuable.

[41] Croix de par Dieu is equivalent to *Croix de parte Dei*.

[42] It was called the *petit Latin* and from its peculiar form the *Longuette*. Cf. Babeau, op. cit., p. 39.

preserved for the almost daily recitation of the psalter.[43] The child was invariably taught to read Latin before he had learned to read in the vernacular. In England the custom was changed during the sixteenth century.[44] In France this was considered the natural method, inasmuch as the Latin tongue was the foundation of the French. In consequence of this method, children were frequently withdrawn from school before they had learned to read in their mother tongue. The custom had begun at a time when Latin was the vulgar tongue.[45] It was only in the seventeenth century that La Salle succeeded, amid great opposition, in changing this order, and teaching the French first. The old arrangement may seem to us a great hardship, but we must remember that we are dealing with a period in which newspapers were not in existence and books were scarce and expensive. Those in the mother tongue were comparatively few and costly. Strolling bards made the people familiar with the substance of popular song and legend—the romantic literature—that ran side by side with the spiritual and theological writings of the period. Even for those who were taught to read in the vernacular, the amount of available reading matter was scanty, and did not extend beyond their catechism, with some Bible history, and an occasional pious book. In the sixteenth century a code of politeness was added. Advanced pupils were further taught to read charts and manuscripts. We find mention made of prizes given for excellence in the reading of documents.[46] When the student could decipher old registers and dusty parchments, often set down in writing difficult to read, his education was considered complete. The master had nothing more to teach him.[47] Teachers have been rejected because they could not decipher the deeds, charts and documents of a township.[48] Those of my readers who have

[43] *État de l'Instruction primaire dans l'ancien Diocèse d'Autun*, 1878, p. 22.
[44] Mulcaster, *Positions*, p. 31.
[45] *Essai d'une École Chrétienne*, Paris, 1724, p. 293.
[46] Maggiolo, *Les Archives scolaires de la Beauce*, p. 19.
[47] Babeau, *L'Instruction primaire dans les Campagnes*, p. 40.
[48] Sérurier, p. 54; *Archives de la Gironde*, C. 3282; Alain, op. cit., pp. 168, 169.

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had any experience in deciphering all such documents cannot fail to respect the intelligence and patience of the teacher or pupil who had become expert at the work. In the seventeenth century pupils were taught to read books printed in the black-letter or Gothic characters. Thus, one of the earliest hand-books of pedagogy says: "While they are learning politeness and to read manuscripts, the master shall teach them how to read in some book printed in Gothic letters, showing them once a day the characters, ligatures, abbreviations, and capitals in this kind of printing.[49]

Arithmetic in the primary school did not extend beyond a knowledge of numeration. Far into the Middle Ages the Roman system of learning figures and letters by means of pebbles was employed.[50] Alcuin, as well as Isidore, sought rather the mystical meaning of numbers than their practical utility. Only in computations bearing on the ecclesiastical year was any serious use made of them. Even Gerbert gives only the teaching of Boëthius, and though he simplifies the abacus, he does not introduce Arabic numbers, as has been frequently asserted.[51] It was in 1202 that Leonard Febonacci, a merchant of Pisa, published his books on arithmetic and algebra, in which he introduced the Arabic figures, decimals, and another modification of the abacus. Vincent of Beauvais, one of the most encyclopædic men of his day, popularized the system. Up to 1581 we find no mention of arithmetic in the primary school. Mulcaster speaks only of "writing and reading" as the two things which children might easily learn "for religion's sake and their necessarie affaires."[52] An arithmetic published in 1719, in France, contains numeration and the first three fundamental rules. The examples are all in the concrete, dealing with yards of cloth, casks of wine, and the like. The book was then considered a novelty.[53]

[49] *L'École paroissiale*, p. 253.

[50] Cf. *Etymologia* of Isidore of Seville.

[51] Chasles, *Mémoires de l'Académie de Science*, 1843.

[52] *Positions*, p. 139.

[53] It was called *Instruction nouvelle pour enseigner aux Enfants a connoitre le chiffre et a sommer avec les gets*, Lille, 1719. Resbecq has an analysis of it in his very instructive and valuable work, *Histoire de l'Instruction primaire dans le Departement du Nord*, Paris, 1878, pp. 84, 85.

Writing was taught in the primary school. But as the schoolmaster was frequently the scribe of the village, and in the employment of his pen found an additional source of income, he was very slow in teaching writing to his scholars, fearing lest they would afterward supplant him as public scribes.[54]

In the fourteenth century writing is but little practiced among the people; it still belongs to an exclusive profession. In the fifteenth century it ceases to be so exclusive, and we find that the *bourgeoisie* write. In the first quarter of the sixteenth century the signatures of all kinds of artisans begin to appear. At this period also do we find the writing-masters organized into guilds, apparently for mutual protection against the encroachments of other teachers. By a decree bearing date of July 2, 1661, primary teachers are circumscribed as to the amount of writing they may teach their pupils and prohibited to teach special pupils unless they are licensed to keep a writing-school, all being in accordance with a decree made in the year 1600. And in like manner, the writing masters were forbidden to teach any subject beyond writing, arithmetic, and orthography—"for which purpose only they were permitted to use books in print or in manuscript, without abusing them or using them to teach reading except in the manuscripts assigned and for the purpose only, without fraud or subterfuge."[55] It was Jean Baptiste de la Salle who broke up this monopoly, about twenty years afterward. In addition, the girls were taught sewing and knitting, and all the children were taught singing. Religious instruction pervaded the school from morning till night. The last quarter of an hour was daily given to Christian doctrine, and on Wednesday and Saturday afternoons the children were taught the catechism of the diocese. Later on, in Paris, as complaints were made that the children were devoting too much time to catechism lessons, those of Saturday were transferred to Sunday.[56] And

[54] E. Rendu, *De l'Éducation populaire dans l'Allemagne du Nord*, p 8.
[55] Cf. Charles Jourdain, *Histoire de l'Université de Paris*, p. 215.
[56] *L'École paroissiale*, p. 113.

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that teachers be imbued with the spirit of faith and piety, they were expected to read daily in some spiritual book. The precentor of Notre Dame prescribes the following books: *The Imitation of Christ, Lives of the Saints, Introduction to a Devout Life* by St. Francis de Sales; Catechism of Cardinal Bellarmine, Catechism of the Archbishop, the Old Testament —especially Proverbs, Wisdom, Ecclesiastes; the New Testament. This is the spiritual food with which their piety was nourished. In addition, they were recommended to read two valuable works on methods of teaching, *Le Pédagogue Chrétien* and *L'Escole paroissiale*.[57]

Such were the subjects taught in the primary schools of the Middle Ages. Let us not censure them for their limited scope. We find it no better elsewhere. We turn, for instance, to the Moorish primary schools in Spain, and we find the children of the poorer classes learning, in their way, what our Christian children had been learning in theirs. They are taught reading, writing, and religious doctrine. The child first learns the Arabian alphabet. He is then taught the difference of letters according to punctuation, accentuation, sound, the composition of letters, and the other elements that enter into the study of Arabic words. He is afterward carefully drilled upon pronunciation. Finally he learns to read the Korân, which is for the Arabian the Alpha and Omega of all study. Here his education finishes.[58]

It is evident that the Christian mediæval primary schools were not always and in all places kept up with uniformity. Nor were these the only schools in which children might learn the elements of knowledge. There were numerous private schools kept by a class of teachers who were known as grammarians. These grammarians seem to have been a restless class, passing from town to town. They were subject to pay a tax.[59] Erasmus has pictured them with a pen dipped in gall.

[57] *Statuts et Réglemens des Petites École de Grammaire de la Ville, Cité, Université, Faux-bourgs et Banlieuë de Paris*, 1672, Preface.

[58] Henricus Middeldorpf, *Commentatio de Institutis litterariis in Hispania quæ Arabes Auctores habuerunt*, Goettingæ, 1810, p. 53.

[59] Choron, *Recherches Historiques, Bulletin de la Société Archeologique*, fascico 2, p. 69.

He calls them: "A race, of all men the most miserable, who grow old at their work surrounded by herds of boys, deafened by continual uproar, and poisoned by a close, foul atmosphere; satisfied, however, so long as they can overawe the terrified throng by the terrors of their look and speech, and, while they cut them to pieces with ferule, birch, and thong, gratify their own merciless natures at pleasure."[60] This might have been a scene of frequent occurrence, and yet there might have been, and no doubt there were, many worthy men belonging to the profession.

Throughout the Middle Ages the level of education varied with times and places. The ravages of war, the terrible scourges of plague and famine that devastated whole peoples, were as disastrous to the progress of education as they were to that of life and civilization. The school, being sustained by local enterprise, varied with the fluctuations of local energy. What we might call the public school in France was created only in the fifteenth century, reached its highest state of efficiency in the sixteenth century, declined in the seventeenth century, and, under the new impulse given to all primary education by La Salle, revived in the eighteenth century. We are told that during the eighteen years of the reign of Louis XVI. more schools, both large and small, were founded and legislated for than during the whole French monarchy in twelve hundred years.[61] Paris was always a specially favored city as regards education. Independently of the schools attached to churches, eleven masters and one mistress figure in the roll of the land tax levied on the inhabitants of Paris by Philip the Fair, in 1292. In the fourteenth century we find record of forty-one masters and twenty-two mistresses; in the fifteenth century, there are a hundred; and at the close of the sixteenth century, the precentor Claude Joly enumerates no less than five hundred schoolmasters and schoolmistresses. The statutes regulating these schools date back to the year

[60] *Encomium Moriæ.*

[61] Boutiot, *Histoire de l'Instruction publique et populaire à Troyes, pendant les quatre derniers siècles*, pp. 7–15.

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1357.[62] It should be remembered that this was the period—from the thirteenth to the sixteenth century—in which the great University of Paris flourished and counted its students by the tens of thousands.

IV.

And now, let us take a rapid glance at school life as revealed to us. Then, as now, there was little uniformity in the age at which children were sent to school. The old French romances generally speak of the hero being sent to school and taught to read and write. This is true of Hervé de Metz.[63] It is true of Garin, who knew how to read in Romance and in Latin.[64] Of another hero we are told that "when he had attained his twelfth year he was a full-blown bachelor . . . . and had passed four years at school."[65]

Sometimes the hero was fifteen years before his schooling was finished, as was the case with the son of Parisi la Duchesse.[66]

James Melville, of Scotland, born in 1556, tells us that in the fifth year of his age the "grace-buik" was put in his hands at home, but he made little progress in it. At the age of seven he was sent to school at Logie Montrose.[67] During the first five or six days the pupil was placed apart from the other scholars and no lessons were assigned him. Afterward he was supplied with his A B C book, which he carried hung to his belt.[68] He also brought the rod with which he was to be punished.[69] The use of the rod was universal. We read

[62] Ravalet, *Life of Blessed de la Salle*, illustrated edition, p. 27.

[63] Bibliothèque Nationale, MSS. française, 19,160.

[64] Le Loherains fut a escoles mis. . . . .
Bien savoir lire et roman et latin.—*Garin le Loherains*, I., 179, 180.

[65] Quant ot xii. ans moult fu biax bachelier
D'esches de tauble fut bien en doctrinez
Et a l'ecolle fut bien iiij. ans passez.
—Bibl. Nat., MSS., fr. 19,160, f. 3, § 7.

[66] Quant l'anfes ot quinze ans et compliz et passez—
Premiers apprist a letres tant qu'il en soi assez.
—*Parisi la Duchesse*, ll. 964 65.

[67] James Grant, *History of the Burgh Schools of Scotland*, p. 59.

[68] Bibliothèque Nationale, MSS., fonds latin, 15,955 : Anonymous sermon.

[69] Grant, op. cit., p. 61.

of its employment in England in the eleventh century.[70] St. Louis, King of France, when a boy, was beaten with rods once a week.[71] Guibert of Nogent tells us of the harsh treatment he received, and when his mother, seeing the welts and bruises on his back, wept and said she no longer wished him to learn grammar, he replied that even though he should die he would continue to learn and become a clerk.[72] All were not equally harsh. Bishop Bertram speaks of St. Germanus of Auxerre as a kind teacher, who not only gave him knowledge, but by his prayers led him to the honor of embracing the priesthood. Fortunatus draws a beautiful picture of this same saint in his cathedral, surrounded by the ancients as well as by the youths whom he is training for the priesthood.[73] Anselm of Bec stands forth pleading for mildness and stoutly protesting against the rod as the sole means of training the child. "Can you by beatings," he says, "form the heart of the child and lead it to good principles?"[74] But the men of that day and generation believed in the efficacy of the rod as an essential factor in education.

School opened at half-past seven in the summer months, and at half-past eight in the winter months.[75] The child was there generally half an hour earlier. On entering, his first act was to say a prayer on his knees.[76] One of those prayers has been handed down to us from the Catholic days in Scotland. It will bear repetition: "I thank Thee, heavenly Father, that Thou hast willed that the past night hath been prosperous for me; and I pray that Thou wilt also be favorable to me this day, for Thy glory and the health of my soul; and Thou who art the true light, knowing no setting, Sun eternal, enlightening, supporting, gladdening all things, deign to enlighten my mind, that I may never fall into any sin, but, by Thy guiding,

[70] Alfric's *Colloquies*.
[71] Henri Martin, *Histoire de France*, 4*me ed.*, t. iv., p. 133.
[72] *Vita Sua*, lib. i., cap. 6.
[73] *Carmina*, lib. ii., 8.
[74] Cf. *Christian Schools and Scholars*, vol. i., pp. 418, 419; Choron, fascic. 2, p. 74.
[75] *Recueil des Ordonnances Synodales du diocèse d'Autun*, 1685.
[76] *L'École paroissiale*, p. 67.

XUM

arrive at life eternal. Amen."[77] The children began the day's study by assisting at the mass. On their return from the church they took their breakfast. In those days, it was customary for every child to bring not only his own meal but also something for the very poor who had none to bring.

Now that school has begun it would interest us to know the methods pursued in teaching. There lies before me an old wood-cut of the sixteenth century representing the interior of a school. As customs were slow to change, we may take it for a type of the school in the Middle Ages. The teacher is seated in a large arm-chair, with a low-crowned, broad-brimmed hat on his head and a mantle on his shoulders. He holds in his hand a bundle of rods, and in his lap a large folio lies open. The boy whose lesson he had been hearing stands aside while the master is talking very earnestly to another boy with hat in hand, and we infer that the latter has come late and is to be duly punished. A long table runs down the center of the room, at which the other boys stand in various attitudes with open books before them. There is a low stool destined for the new comers. A small boy has his book laid upon the stool, while he himself is engaged with balls or marbles on the floor. In another engraving, bearing date of 1493, the same low stool is found, and on it sits the same small boy, holding his book out to a little terrier as though he would have the dog to read. In this engraving it is evident that the teacher employs exclusively the individual method. He knew no other. Each boy in turn stood before the teacher, recited or read his lesson, and resumed his seat to give place to another. In the mean time, the remainder of the school was doing as it liked. The assiduous ones were occupying their time in reading or spelling or arithmetic or writing; the giddy ones were disturbing the others as far as they might do so with impunity. Much time was lost and only slight results were achieved. An anonymous pamphlet, issued about 1680, bewails the loss of time that is the consequence of this individual method. "In our colleges," he says, "we find pupils of the

[77] Directory of Aberdeen Schools, cf. Grant, op. cit., p. 60.

same capacity placed in the same class; why is not the same done in our primary schools?"[78] Another anonymous work, a teacher's manual, advises that children be taught writing at as early an age as possible so that they may have occupation, and to avoid disorder while the master is engaged with the lessons of each one.[79] Still another manual recommends that the more advanced pupils call up their less advanced companions every half hour to recite a lesson—a method "making as many masters as there are pupils."[80] On the whole, the individual method was the only one known and applied up to the seventeenth century in the primary school. This led to great waste of time. Jean Baptiste de la Salle was the one to revolutionize the whole system of primary teaching by introducing the simultaneous method.[81]

With the individual method there was necessarily an absence of emulation. During the Middle Ages we meet with few modes of recompense for work done in the primary school. In 1585 we come upon a class of Abecediaries, who, in presence of several wrote the same sentence, and he whose penmanship was declared best received from the hands of the mayor "two pens and a penknife."[82] In more advanced classes books were given as prizes. But the best boy in the school was otherwise honored. And this leads us to consider the sports and recreations of the school-boy of that day.

I have now before me a most interesting old print, taken from a book of Hours, bearing the date of 1523. The subject is boys coming out from school. Some are flying a hawk; others have hurling-sticks and a ball, and one of this party has fallen down; others again are testing their strength by standing on one leg and placing the soles of their shoes flat

[78] *Avis touchant les Petites Écoles.* It is to be found in the Bibliothèque Nationale.

[79] *Essai d'une École Chrêtienne*, P. vi., chap. 14. This essay is not to be confounded with the *Conduite de l'École Xtienne*, a work on the same subject by Jean Baptiste de la Salle.

[80] *L'École Paroissiale*, Paris, 1654, p. 75.

[81] Cf. André, *Nos Maîtres d'hier: Études sur les progrès de l'Éducation et sur les Developpements de l'Instruction populaire en France*, Paris, 1873, p. 295.

[82] Maggiolo, in Buisson's *Dictionnaire de Pédagogie*, i., p. 724.

against each other and then pushing till one gives way. Another school-boy game was this: At one end of an alley-way a suspended stick supports a crown decked with ribbons. At the other end stood the scholars, and each in turn sought to knock down the crown. He whom luck or skill favored received compliments from his companions, and was crowned king of the *Neude*. As such he enjoyed many privileges during the year.

But the game that crowned all other games with mediæval students of all grades, from the primary school to the university, was cock-fighting. It was emphatically a school-boy sport, and had its origin in the school.[83] The annual recurrence of the day of *les joutes de coqs* was keenly looked forward to. We find the custom established in London about 1174. We learn that about that time, every Shrove Tuesday, the boys were wont to bring their fighting-cocks to the master and during the whole morning they had cock-fighting in the school-room.[84] After dinner they indulged in the game of football. In France, on the day appointed, all the students assembled in a large hall. Their birds were fasting, and were nourished with some drops of generous wine. The two first champions were placed facing each other over a plate of oats. They eyed each other for some time and then began to attack. The defeated one was withdrawn and replaced by another. The cock that floored the greatest number is victor; his master is proclaimed king and is carried through the town in procession amid universal rejoicings. During the remainder of the school year he takes the lead in all religious ceremonies and public reunions.[85]

In the rural districts and in the poor schools of the towns, where each boy could not afford to keep his own bird, the students indulged in the sport known as "Killing the Cock." In this case the bird was pursued and beaten to death. In many places it was the schoolmaster who, by stipulation,

[83] Leopold Delisle, *Études sur la Classe Agricole en Normandie au Moyen Age*, p. 185.

[84] Fitz Stephen-Pogge.

[85] *Histoire de Chateau Theirry*, p. 168.

furnished the cocks for the occasion. Thus, in 1282, we find a schoolmaster at Dieppe held indebted for no less than four.[86] In 1353, the schoolmaster of Rameru was bound to furnish his pupils annually with a cock to be thrown at with sticks.[87] The practice was continued down to recent days in some of the districts of France. And this in spite of protest and interdict on the part of Church authorities. Thus, as early as 1260 we find the barbarous amusement condemned by the synod of Coprigni, presided over by the bishop of Bordeaux.[88]

A day which the younger children celebrated with great pomp and ceremony was the feast of St. Nicholas. On that day they chose a bishop from among their number. In many places the honor was reserved for the best and most studious boy. The chosen one was dressed up in gorgeous pontificals and borne in procession to the church with the accompaniment of fife and drum and violin. He ruled as king of all celebrations during the day, and in honor of him the children of the school received presents and were feasted. Afterward a play was enacted in which St. Nicholas figured as savior and protector of person and property. He was frequently represented, as in our modern pictures of him, in the act of restoring life to three children. But the playing of this rôle led to so many abuses that it was suppressed by act of parliament, and the schoolmaster permitting naked children to appear on the stage was heavily fined. The saint was also represented as finding stolen goods that had been placed under his protection. Champollion-Figeac brought to light one of those plays dating back to the twelfth century, written by one Hilary, an Englishman, and a disciple of Abelard. It is one at which Abelard himself might have been present. The play is very simple and rude, and is written in a mixture of Latin and French. It had been for centuries the tradition to write comedies, farces, and plays in the Latin tongue. We have now arrived at a point where there is a breaking up of the tradition. Latin is becoming more exclusively confined to the schools. But in

[86] Delisle, op. cit., p. 185. [87] Ibid. cf. Boutiot, op. cit., p. 18.
[88] Labbe, *Concilia*, xi., c. 800. D.

the cities and large towns it was still understood by the people. Few were the boys there present who could not have taken in the whole sense of this play. And what with the robbers carrying off the stolen goods and what with the spectacle of a rude angry man, loud in words and fierce in gesture, the play must have greatly amused the little ones. Barbarus,—who impersonates a rude and ignorant man,—confiding his treasures to the protection of St. Nicholas, places them at the foot of his statue. The treasures are stolen. Thereupon, Barbarus grows furious, and frets and fumes and bemoans his sad lot in having placed his goods in such bad keeping. He goes up to the statue, and with violent gestures tells Nicholas that he must return the goods or he shall pay for them:

Mea congregavi,
Tibi commendavi;
Sed in hoc erravi.
Ha! Nicholax!
Sé ne me rent ma chose, tu ol comparras.

But words having no effect, he takes a whip and threatens to beat Nicholas if the goods are not forthwith coming. Nicholas goes after the thieves, and induces them to repent of their evil ways; which they do, and they forthwith make restitution. In fear and trembling these men bring back the goods to the place from which they had been taken. Barbarus thereupon becomes jubilant:

Nisi visus fallitur
Io en ai.
Tesaurus hic cernitur,
De si grant merveile en ai.

In a transport of gratitude, Barbarus offers Nicholas all the goods, but Nicholas appears to him and exhorts him to thank God alone: "Not to me the merit; that belongs to God alone; bless Him and bless the name of Christ." Whereupon Barbarus becomes converted.[89]

And now that the play is over, let us also return from our

[89] *Hilarii Versus et Ludi.* Paris, 1838, pp. 34-39.

short excursion to the primary schools of the Middle Ages. From the close, narrow, badly lighted, and poorly ventilated school-room of those days, with its dingy walls and low ceiling, we pass into the light, spacious, well-ventilated school-rooms of our own times. But let us remember that in other days there were other manners, other customs, other standards of comfort, and another order of ideas. Our own progress is only of recent growth and has been very slow. Moreover, the seeds of that growth have been sown elsewhere. In the mean time I find that I have been neglecting the Abbé Alain. I cannot conclude without stating my appreciation of the solid work he has done, by placing within the scope of all the result of researches scattered through many volumes bearing especially upon education in the sixteenth and seventeenth centuries.

BROTHER AZARIAS.

DE LA SALLE INSTITUTE,
NEW YORK.

III.

THE HERBARTIAN SYSTEM OF PEDAGOGICS. (II.)

The subject of education itself falls with Herbart into three divisions: instruction (*Unterricht*), government (*Regierung*), and moral training (*Zucht*). Before beginning a discussion of each of these, it will be convenient to discuss some of Herbart's more general notions regarding education. The watchword that is inscribed on the banner of every Herbartian is, *Erziehender Unterricht*, instruction that makes for character. The idea that education ends in mere knowledge or intellectuality, in technical ability or bare mental power, has no place in Herbart's thoughts. The ideal that always hovered before him, and to which the whole educational organization must be subservient, is the formation of character in its essential elements —" the systematic creation and culture of representations, the elements of mental life, up to the attainment of many-sided interest, out of which shall proceed, on the one side, a direct capability and aptitude to will, and on the other, taste, or moral-æsthetic judgment." It is the task of education to create in the soul a richness of demand (*Verlangen*), which shall form the source of future desire and will; and so to direct the desires thus created that they shall contribute to the needs of practical life. It is interest that forms the transition from the objective representation to the subjective will; " it stands in the middle between mere contemplation and active appropriation." " We are indeed inwardly active when we are interested, but outwardly inactive until interest passes over into desire and will." Instruction, then, on the one side, enriches desire and will, and on the other it reaches its second goal, the moral-æsthetic sense, by a careful elaboration and development of sympathetic interest (*Theilnahme*). This is to be brought about by the presentation of those forms of life that mirror the relations of human will, whether directly or indirectly. This, of course, involves an exhibition of human life in its various relations,

past and present. The present, however, with its highly complex civilization, does not furnish us—especially the young—with a clear perception of its moral-æsthetic relations. How many older heads have become confused in trying to unravel the tangled skein of modern civilization! Education must begin with simpler conditions, with the picturing of an ideal boyage. This the teacher finds in the *Odyssey* of Homer. The linguistic part of the boy's education should begin, then, with Greek, and not with Latin. It should begin with the reading of Homer before the end of the tenth year, and should continue with literary and historical studies according to the advancing age of the boy. We find herein the thought of beginning this side of education with an exhibition of the simplest forms of human society, the basis of an important later development by the Herbartian school; namely, the *culturhistorische Stufen* (the grading of instruction according to the historical growth of human culture and institutions). It is a chief duty of education to present the world in its moral order and to interest the pupil in its moral forms. It does this by presenting to him *pictures* of the will (*Bilder des Willens*), which excite his moral judgment and imitative instinct. The psychological question, how does morality arise, *i. e.*, how do the awakened desire and will unite with moral-æsthetic judgment into a totality which forms the end and aim of all education, can at present be but briefly answered. It is not alone in that "æsthetical necessity" by which we are forced to pass judgment upon our will according to moral principles, but in the unity of the person who wills and who judges, that we find the mediation of the two elements. The psychological necessity of living in harmony with one's self impels the pupil, when there has been a proper development of moral judgment, to a harmony between his will and the moral ideas. "He must scorn himself, if he does not follow."

The classification of many-sided interest—empirical, speculative, æsthetical; sympathetic, social, religious—gives the key to what should form the matter of education. Everything merely utilitarian, except as it may serve as a means to learn-

ing, as, for instance, reading, writing, etc., must be excluded. With this exception Herbart cannot see how any great department of learning is to be excluded from the field of education, and we find, therefore, that he is not a partisan in the strife between the humanists and the realists. He had no sympathy, however, with the old realistic, utilitarian view of education, but turned with a strong preference to the ideal humanism. But, on the other hand, he believed that mathematics and physics are necessary parts of character-building instruction.

The whole purpose of Herbart's pedagogics, then, is to effect the culture of intelligence, desire, and will in close union with the moral ideas, so that the latter may penetrate and determine the former. Whatever may have been his success in reaching this highest ideal of education, the earnestness and originality of the attempt demand our warmest acknowledgment and regard.

We may pass now without further remark to the

TECHNICS OF INSTRUCTION.

We have seen that all mental life consists in the reciprocal action, relations, and conditions of the representations; that the business of education is to supply ideas, to assist in their arrangement, and to bring their proper relations before consciousness. An ideal system of pedagogics must show how this is to be done. We are indebted to Herbart, perhaps, more than to any other man, for a series of fine observations giving clearness and certainty to the procedure of instruction.

The first step in this direction is the doctrine of Attention, a subject that has received its most exhaustive and fruitful treatment at Herbart's hands.

Voluntary and involuntary attention are the two parts into which the subject naturally falls. The first is brought about, through the effort of the will, in obedience to some remote purpose in the government or training of the teacher. In this case the representations are *given* to consciousness and are not spontaneous (*freisteigend*). At this point one of the greatest and commonest mistakes of teachers is made. They imagine

when they are forcing attention or inducing it by means of remote ends, such as good marks, emulation, high rank in school, prizes, etc., that they are best serving the child and the school. They do not consider that they are losing sight of the main purpose, which is the excitation of direct interest. This can only arise out of the subject itself. The voluntary attention, however, is by no means to be rejected in those cases where self-control is necessary, as in long-continued direct perception, in learning by heart, etc. For this latter procedure, Herbart gives practical hints. We should not begin with learning by heart even when this itself is the end to be reached. First must come clearness in single perceptions; then the association of the same. There should be no hurry: the beginning must be slow, especially where great difficulties are to be met. Bodily movements, oral recitation, often in concert, writing, drawing, are all helps which are not to be neglected. Even where the memorized matter is to be always held by the memory, perpetual repetition is a questionable means, for it may easily lead to overpressure. It is preferable to exercise the mind by constant application of the matter in hand to that which actually interests the pupil.

Involuntary attention is divided into primitive and apperceiving. In primitive attention the representation arises solely through its own individual power; in apperceiving attention it is assisted or reinforced through its connection with representations already present. For the primitive attention, Herbart lays down four rules:

1. The sense impression must have sufficient strength; hence the need of direct sense-perception (*Anschauung*) of things. This failing, a picture is preferable to a description.

2. Excess of sense-impression must be avoided, so that receptivity may be prolonged.

3. A rapid piling up of one thing upon another must be avoided. There must be singling out, separation, procedure step by step, in order that through the opposition of the representations, a hindrance or mutual arrest shall not arise among them.

4. There must be intermissions, or resting points, so that the aroused representations may have time to restore their equilibrium, or, in other words, so that the child may have time enough to apprehend, in its proper connection, what has been given to him. It is not advisable, therefore, to hold young children to recitation for long periods at a time.

The apperceiving attention is that state of the mind in which each new representation is brought into proper union or relation with those already present. It is of the greatest importance in education, and although presupposing and depending upon the primitive attention, it is observed very early in life. Apperception must constantly be exercised in all instruction, for instruction is given in words only; the representations upon which the interpretation of the words depends must be supplied by the hearer or learner. When this kind of attention is once properly pursuing its course, it should not be disturbed. The teaching must go on until it has satisfied the expectation that it has aroused. The solution must plainly answer to the problem. Everything must be connected. Attention is disturbed by untimely pauses or the introduction of foreign matter. It is disturbed when that is brought into the light which should have remained in shadow. The same is true of oft-repeated words, set forms of expression—everything that emphasizes the language at the expense of the subject-matter; this is true even of rhymes, stanzas of poetry, and rhetorical adornment when used in the wrong place. A fundamental rule is that, before being set at work, the pupil shall be led into a field of consciousness similar to that in which his work is to lie. This can be done at the beginning of a recitation hour by giving a short review of the work of the preceding lesson or by a general view of that which is to be attempted, or both. This thought is more fully developed by Herbart's disciples. Instruction builds upon the foundation of experience already gained in or out of the school. The fact that that which is already possessed is to be widened and strengthened and arranged, excites attention and expectation. If that which is already possessed is not strong and vivid enough, it

must be reproduced in order to lead the pupil into the field of thought where his work lies. The right care for the apperception, *i. e.*, the proper disposition of the masses of representations as they exist in consciousness or come into it, is of the greatest importance in methodical instruction. For, only by a vital and consistent uniting of new representations to those already present, can the compass of thought be continually extended and made a permanent acquisition. This is the reason why the teaching of great numbers of unrelated facts, in geography and history for instance, is such a fatal blunder.

In the activity of the mind in taking on or apprehending the representations in their manifoldness, we meet with the notions of Absorption (*Vertiefung*) and Reflection (*Besinnung*). Absorption is the giving up of one's self to an object in thought. It is the special care that one gives to a subject in order to apprehend it fully and enter into it. But absorption should not be distorted. A single, habitual frame of mind that would falsify and minimize all other impressions, must be avoided. "The mind should manifest itself clearly in many directions."

But again, the personality that rests upon unity of consciousness would not obtain in continuous absorption, if the collecting power of reflection did not step in to unite the manifold that absorption has given. Reflection must, however, avoid the synthesis of the contradictory, for where this occurs confusion follows, or the mind is lost in doubt and irrational desires. "But the true significance of reflection (*Besinnung*) is not that what we call inner synthesis, consists merely in a uniting of representations in general, but that we simultaneously gather them about the focus of our self-consciousness, and make ourselves aware of them as our possessions or mental states."[1] But since the two notions, absorption and reflection, exclude each other, each must pass over into the other. Herbart calls them the inspiration and expiration of the soul.

[1] Schmidt, *Encyclopädie der Pädagogik*, Art. Herbart.

THE FORMAL STAGES IN INSTRUCTION.

In this connection we come next to the logical distinction of four steps or stages in instruction and method. They are: (1) clearness; (2) association; (3) system; (4) method. These ideas we shall find fully developed and applied by Herbart's disciples, under the name of *die formalen Stufen des Unterrichts* (the formal steps of instruction).[2]

Taking up the four notions in order, we have:

1. Clearness.—By this term Herbart means the apprehension of the individual, or single object, as such. The manner of instruction is simple presentation on the part of the teacher and reception on the part of the pupil. It may, according to one of Pestalozzi's methods of elementary instruction, consist in the teacher's presenting a word or a sentence to the class and having the latter repeat the same, singly or in concert. In general, it means the perception of any concrete or individual fact by the pupil. This step is one of absorption.

2. Association.—This consists in a progress from one absorption to another, as opposed to the non-progressive absorption of the first step. It appears as a uniting that is determined through the imagination, "which tastes every compound and rejects only the tasteless." Association is not complete when, in that which is learned, there is not force enough to bring the imagination to the front, or when that which is learned checks its action. The method for this step is conversation, which gives the pupil an opportunity to investigate, to change, to make consistent the accidental union of thoughts, and to assimilate, after his own fashion, what is learned. This step, although characterized as absorption, seems to contain elements of reflection. It is an elementary stage in the process of apperception or assimilation of knowledge.

3. System.—This is the step in which each part of that which is learned finds its proper place in relation to the other parts. It evidently belongs to the non-progressive reflection (*ruhende Besinnung*). "It is the rich arrangement of a rich

[2] See, in German, Wiget's *Die formalen Stufen;* in English, the writer's *Essentials of Method.*

reflection." Its essential condition is clearness of the individual elements; its method is the connected discourse. The bare statement of an all-pervading principle does not suffice to bring its importance into view, except to him who reflects. To see the importance and bearing of this principle one need only consider what a chaos instruction is when co-ordination does not come in to unite and articulate any given manifold. Just as the mind synthesizes the manifold of sensation into significant unities, so the teacher should synthesize the manifold given in instruction, in order that each factor may find its place in an organic whole. This stage completes the association of the elements of knowledge and brings about the highest scientific organization of which the pupil is capable.

4. Method.—By this term Herbart understands the well-ordered self-activity of the pupil in the solution of tasks, and in investigation under the leadership of the teacher. He sees in this step the progressive reflection. The mode of procedure is to assign tasks and problems whose preparation is the duty of the pupils, and which the teacher corrects.

As before remarked, it is one of the chief merits of the Herbartian school to have further developed these thoughts of the master.[3] We may therefore defer a more minute discussion of the subject, and close this department of our topic with a few quotations of general import.

Herbart says: "In general, absorption should precede reflection, but just how far it must do so remains undetermined. Certainly the two must be kept together as closely as possible, for we wish no absorption that would be harmful to personal unity, the condition of which is reflection. We can desire no reflection whose long and unbroken continuance would create a tension under which a sound mind could not exist in a sound body. In order, therefore, to keep the mind in balance, we prescribe the general rule: give equal promi-

[3] The most elaborate application of these four ideas, now known in Germany as the formal stages of instruction, is found in Dr. Rein's *Theorie und Praxis des Volksschulunterrichts nach Herbartischen Grundsätzen.* In these books all the work for the eight school years is laid down in great detail, and a large number of model exercises worked out according to the formal steps.

nence to absorption and reflection in every group of objects, even the smallest; that is to say, emphasize equally clearness of the individual perception, association of the manifold, co-ordination of the associated, and progress through exercise according to this co-ordination. Upon these conditions depends the charm which should rule in everything that is learned."

In this connection Herbart's protest against tediousness in the school-room is pertinent. He says: "Experience often brings a tediousness that we have to bear, but which the pupil should never have to suffer at the hands of the teacher. *Tediousness is the greatest sin of instruction.* It is the privilege of instruction to fly over steppes and morasses; if it cannot always wander in pleasant valleys, it can at least exercise in mountain climbing and reward with broad fields of view."

CHARLES DE GARMO.

UNIVERSITY OF ILLINOIS,
CHAMPAIGN, ILL.

IV.

THE PSYCHOLOGICAL STUDY OF CHILDREN.

Prominent among the characteristics of modern science are the attention and zeal devoted to the study of beginnings, and to the comparative study of phenomena appearing in different forms and stages. Psychology has profited by this tendency, and in no department more markedly than in the study of the mental growth of children. It is my object in the following pages to outline the position, the purpose, and, in part, the results of this field of study in so far as it is of interest and importance to the student of education.

There are two fundamental facts or laws upon which the significance of the term education may be said to depend. The first is the fact of life itself, of growth,—the fact that the individual enters the world in a condition simpler than that which he is destined to attain. The second is the law of habit, implying that every response of an organism to a condition in its environment renders the repetition of that response more certain; implying, too, that the establishing of certain forms of response renders more difficult the establishing of others, and thus securing for the first stimuli the strongest impressions. We have thus designated a period of life in which modification is easy, in which habits sanctioned as valuable by centuries of civilization may be founded, in which individual character may be formed. This is done by the combined influences of the parents, the associates, the environment, the educator; and the educator's work being more professional, more systematic, more studied than the others, it becomes most important for him to appreciate the biological and psychological significance of the period of life with which he comes into such intimate relation.

This pre-adult, preparatory stage of life is not confined to the human species, but increases in length and importance as we ascend the animal scale up to man. Contrasting a low-

type with a high-type organism, we find in the one a short span between birth and maturity, and one rapidly traversed; in the other a long span, slowly traversed; in the one a minimum, in the other a maximum of adaptability and modifiability. The low-type organism has a shorter road to travel to reach its goal and enters upon this life in a more nearly mature condition than the high-type organism; it is in a very true sense "older" when it is born, for the characteristics of age here pertinent, are settled modes of reaction, and little of the modifiability that accompanies youth and immaturity. A prolongation of the period during which adaptation to a complex and variable environment is possible and easy, will, it is clear, greatly favor intellectual progress, and it is in this light that the length of infancy, childhood, and youth appears in its full and true educational significance.

Illustrations of these points are many and various; the greater perfection of the powers at birth in the lower animals appears in striking contrast to the helplessness and imperfections of the human infant. The chick walks about a few minutes after birth, pecks accurately at objects, correctly interprets the sights and sounds of its environment, and to a considerable extent is able to take care of itself. Such powers take weeks to appear in a kitten, and months or years in the human babe. These ready acquisitions of the chick are largely inherited; those of the infant are established with regard to the needs of the environment. As a consequence, there is a more generic similarity among the members of a low-type species, more marked individuality among the members of a high-type species; in the one a large share of characteristics inherited in common, in the other a large share of acquired characteristics peculiar to individuals. Turning to the stages of growth from savagery to civilization, we find the same distinctions between levels of progress. The pre-adult period of the savage is shorter than that of the civilized man, and his modifiability, his mental status, correspondingly deficient. The powers of the savage are precocious in their appearance, but they are proportionately limited, proportion-

ately non-progressive. There is, too, an earlier waning of the faculties, a more fundamental similarity among individuals, an altogether simpler psychic life.

Briefly, then, the biological significance of this formative period of life is supreme. The period increases in length with the advance in intellectual status of the species, as also of human races; and this length is in part gained at the expense of the greater immaturity of the young when entering the environment, in the complex relation to which life consists.

The important aspect of "Child Psychology" above emphasized is its close relation to the psychic development of animals and to the evolution of the savage into the civilized man. The cardinal principle involved is that these three paths of mental evolution are connected by a significant, though imperfect and disjointed parallelism—that the criteria by which stages of mental efficiency are measured along one of these paths are serviceable as well along the others. Though admittedly limited in scope, this parallelism has been of such service in opening up trains of thought overlooked for lack of a directing attention, in giving life to facts known but not appreciated, that its value, and particularly its educational value, is unmistakably great. Mr. Romanes claims not only a large share of emotional and intellectual capabilities as the common possession of child and animal, but also the same order of appearance of these powers in the ascending scale of animal organisms, and in the growing development of the child. The growth-processes of childhood would thus appear as an imperfect epitome of the evolution of the species. The generalization becomes truer and broader by taking into account the embryonic period of life during which functions and organs are acquired and outgrown, that in the species represent the acquisition of ages. By accepting this parallelism, if not as a probable truth, at least as a guiding point of view, we will be on the alert for observations and experiments that biology would deem important, and will gain a sustaining interest in what might otherwise be a tedious and seemingly trivial task.

There occurs in the normal growth of the child a point at which the most intelligent animal is outstripped, and thenceforward the comparison between child and animal becomes weak and scanty. This period seems related to that at which there arises the use of language not merely as a means of indicating subjective states, but as a means of widening the mental horizon, as an intellectual implement. Objects are attractive no longer merely for their sense value but for their higher, more symbolic meaning. Voluntary attention, imagination, memory, complex distinctions, comparison, association, rational expectation, logical inference, begin to be established, and the entrance is gained into the world of human thoughts and motives. At this period and in these directions the parallelism between the child and the savage assumes a wide and suggestive importance. Caution in tracing this parallelism is imperative. The adult nature of the one, involving intense passions and the strength needed for their satisfaction, must be borne in mind, as well as the weakness and civilizing environment of the other. And yet, with all this difference in their manifestation, the underlying intellectual and emotional processes are often strikingly similar in the two. The further elaboration of this parallelism will long remain one of the dominant and inspiring motives in the study of the child's mind and heart.

The professional psychologist finds in the study of children a rich mine of facts, by means of which the nature of mental processes may be illustrated and explained. It is to him a psychological method, a means of determining the relations and status of various psychic phenomena. In the adult mind the several processes are so intricately interwoven, the modes of combination so manifold, the phenomena so variously conditioned, that analysis is difficult almost beyond expression. The psychologist, therefore, eagerly turns to the simpler mental complex of the child, and there sees origins and draws distinctions which the experiences of later life hopelessly obliterate; and from the order and mode of appearance of the several faculties, deduces conclusions that form at once a welcome

check upon inferences from other lines of thought and corroboration of them.

A large share of the study of children is devoted to a field of equal interest to the psychologist and the biologist, and deals mainly with the relation of mind-growth to body-growth, with the unfolding of the senses, the development of the motor activities, of reflex, automatic, instinctive, and voluntary actions, and the influence of these upon other and more specifically psychological functions. This study pays special attention to the earliest days of infancy, and demands a skillful interpretation of the very few modes of expressing inward states then present. It demands, too, carefully devised and accurately applied tests, and the repeated corroboration of results upon many infants. Here lies the key to the understanding of the infant's intellectual limitations, of the striking mutual dependence and parallel growth of the receptive and expressive faculties, of the relative value of the various senses, of the beginnings of spontaneous interest and possible training, and of other problems destined to increase and diversify as the field is more thoroughly entered into and conquered.

These delineations of the various points of view from which "Child Psychology" claims interest and study, are far from exhaustive. Nothing has been said of the more special problems, such as the bearing of this study upon the origin and growth of language, upon the relation of the building-up of mental faculty to its decay in old age, its "second childhood"—or in mental disease, to its arrest and morbid growth; upon the conception of perverted activity in adults as a reversal to childish traits, or undue persistence of them; upon the origin and development of sex characteristics, both bodily and mental; and the like. In brief, the child presents a microcosm in which every student, in so far as he studies something human, something living, something developing, may discover something belonging to his chosen field. And with all these interests the student of education should find a close and living sympathy. The practical nature of his task,—the fact that his is the art to which the others attempt to build up the

science—imposes upon him a certain breadth of interest, an eagerness to profit by the results of all who take for their study any of the many phases of childhood.

Having thus realized the goal toward which effort is directed, and the various incentives urging the student onward toward it, we may attempt such a survey of the actual achievements of the various paths that have been more or less thoroughly and successfully traversed as is compatible with the limitations of a single article.[1]

One important use of child study is to differentiate between functions that in the adult have become merged, to reveal what is inherited and what acquired, and thus to furnish an experimental basis for such much discussed issues as that between the nativists and empiricists. Thus in the adult the eyelid involuntarily closes when an object approaches the eye. So also the pupil contracts when exposed to a bright light. But observation of the infant shows that these processes, equally reflex in the adult, do not stand on the same footing; for the pupillar reflex is present at birth, while the other appears first at about the eighth week. From this Preyer concludes that the latter is of more recent acquisition by the species than the former. A further study of vision in early infancy shows that much of what with us is fixed and necessary is the result of much trial and slow acquisition.

[1] The field of study to be reviewed is distinctly modern, belonging in the main to the last third of the present century, as may be seen by reference to Hall's *Bibliography of Education*, pp. 85–93. The more important recent contributions are (1) the English translation of Preyer's *Die Seele des Kindes* (International Education series, volumes VII. and IX.), with the excellent summary of the infant's monthly progress contributed by the translator, Mr. H. W. Brown; (2) Perez, *L'Enfant de trois à sept ans* (1886), a continuation of his former work; (3) Perez, *L'Art et la Poésie chez l'enfant* (1888), a special study of the early growth of the artistic faculty; (4) an announced work, also by Perez, on the development of character in children; (5) Sikorski, *L'évolution psychique de l'enfant*, *Revue Philosophique*, 1885; (6) Binet, several studies in the *Revue Philosophique*, 1890. (7) Stanford E. Chaillé, *Infants, their chronological progress*, a brief article in *The New Orleans Medical and Surgical Journal*, June, 1887. The most important and *accessible* works in Hall's Bibliography are numbers 6, 8, 21, 24, 26, 30 (accessible in a reprint, 1884), 38, 39, 43, 52, 54, 55, 57. Number 42 is wrongly printed; the page reference is to an article by Champneys, Pollock's article being in *Mind*, III., p. 392; both are valuable.

There occur abnormal movements of the eyes that are impossible, because useless, to the adult, from among which those leading to distinctness of vision are retained. The movements of accommodation, the perception of distance, so immediate and unconscious in adults, are imperfect and misleading in the child. Seeing is an art that, like walking, the infant slowly acquires after many trials and not a few failures.

Much of what is fundamental in character, disposition, and inheritance depends upon the nature and intensity of the emotions. In the very earliest days evidences of general bodily pleasures and pains are given, and in the first weeks more specific emotions may be observed. Surprise, fear, anger, and jealousy seem to be the most frequent. Preyer has observed startled surprise in the first weeks of life. Darwin's child showed fear of noises at four and one half months. A child of three and one half months showed fear of cats. Fear of thunder, of large bodies of water, of persons in black have been observed, and not as the result of suggestion. Some of these fears are outgrown as soon as reason begins to direct the emotions; and in all these early emotions the intellectual element is at the lowest. Such fears are present low down in the animal scale. . Romanes has observed fear in caterpillars; Spaulding has observed innate fear of hawks in chicks, of dogs in kittens; while the more intelligent animals exhibit a more rational dread, more rationally overcome. Just as the child, afraid of a squeaking toy, discovers the harmlessness of it and grows to like it, so a dog frightened by the rolling of apples on the floor overhead is quieted when taken there and shown the cause of the noise. Romanes' dog was badly frightened by a bone drawn across the room by an invisible thread. The pushing away of distasteful objects appears as early as the second month, and for many months after there is an intense passionateness upon slight provocation, a screaming rage when objects of desire are removed or bestowed upon another, that irresistibly suggests an inheritance from savagery. Indeed, the community of emotional traits is quite extensive in the child and the savage; in the one as in the other the whole temper-

ament is unstable, impulsive; violent passions easily aroused and readily forgotten, and an equally intense pleasure over trifles. Jealousy appears early, and a child of fifteen months would grow jealous upon seeing her parents kissing one another. Similar traits in animals have been repeatedly observed. In brief, we find such traits as are regarded as most fundamental, appearing early in childhood; we find such traits possessed by relatively low groups of animal species; and we find many of the traits leading to the virtues of civilization equally undeveloped in the child and in the savage.

The educator naturally turns with especial interest to the early stages of those powers which it is his function to direct and strengthen. What we may term reasoning—or a specific adaptation of the individual to a relatively new condition in the environment, and which when explicitly stated would involve a logical train of thought—appears quite early, although it then lacks explicitness and logicality. Darwin thus describes the first act of this kind in his infant son: "After grasping my finger and drawing it to his mouth, his own hand prevented him from sucking it; but on the 114th day, after acting in this manner, he slipped his own hand down so that he could get the end of my finger into his mouth. This action was repeated several times, and evidently was not a chance but a rational one." Lindner records an equally conclusive observation. His daughter, when twenty-six weeks old, finding her bottle so placed that she could draw no milk from it, raised the bottle with her feet until the flow was established; if the feet were pulled away she repeated the act and continued this awkward procedure for three months before learning that the hands were better adapted for such service. Such acts, the counterparts of which have been observed in intelligent animals, conclusively show that thought is possible without words.

There is one prominent process in the early evidences of mind of great value in determining levels of intelligence—the association of mental states or ideas. The viewing of one action as a sign of another is a simple type of such association

that in turn leads to rational expectation, to a knowledge of cause and effect. Darwin says of his child that, when five months old, "associated ideas arising independently of any instruction became fixed in his mind; thus, as soon as his hat and cloak were put on, he was very cross if he was not immediately taken out of doors. When exactly seven months old he made the great step of associating his nurse with her name, so that if I called it out he would look round for her." Tiedemann's boy at five months grew impatient to go out when his nurse put on her hat. Preyer's child, in his sixteenth month, seeing a box out of which he had received a piece of cake on the preceding day, made a begging movement with his hands. Particularly important is the association of a sound with a person or thing, for it is in this that language consists. Perez tells of a child, but four and one half months old, at once recognizing the voice and laugh of his nurse, who had not yet entered the room and had been away on a short holiday. The recognition of words is doubtless much aided by the accompanying vocal and facial expression, but the association between word and thing soon becomes established. A child a year old could not see any article relating to outdoor promenades without saying "mené, mené" (*promener*), which was an invitation for some one to take him out. Preyer's child, when sixteen months old, would look for a ring when the word was mentioned. "A girl, to whom some of the Froebel songs were sung, and who was taught appropriate movements of the hands and feet, always performed the proper movement when one of the melodies was merely hummed, or a verse was said (in the thirteenth month), without confounding them at all." Preyer's child, in his fifteenth or sixteenth month, will make appropriate gesture answers to such phrases as "where is the man," "the clock," "the eye," "the nose"; will cough when the word is spoken, will nod "yes" or "no," and the like. Darwin's child at nine months "associated his own name with his image in the looking-glass, and when called by name would turn toward the glass even when at some distance from it"; and at the same age he learned that an object causing a shadow

in front of him was to be looked for behind. While many of these processes are paralleled in the performances of a trick dog or a monkey, yet I think we may agree with Darwin in saying that "the facility with which associated ideas due to instruction, and others, spontaneously arising, were acquired, seemed to me by far the most strongly marked of all the distinctions between the mind of an infant and that of the cleverest full-grown dog that I have ever known."

Moreover, the study of these processes illustrates the general law that the receptive powers are in advance of the expressive ones; that appreciation antedates and surpasses execution. We recognize more than we recall, we appreciate distinctions that we cannot reproduce, we comprehend ideals that we cannot achieve, and so on. Just so the child understands words and gestures before it expresses its own wants and feelings by them. Such an expression of ideas by an artificial symbolism perhaps marks the upper limit of animal intelligence; a most remarkable example of it is to be found in Sir John Lubbock's dog, Van, who selected out of many cards the one with "out" on it, when he wished to go out. But the more abstract conception of number was beyond Van's capacity; and it is noteworthy how late and difficult is the acquisition of that special form of association that we call counting. Professor Preyer found it almost impossible to teach his child the difference between three matches and four matches even as late as the twenty-seventh to thirtieth month. Professor Stanley Hall found that of children ready to begin school life, eight per cent. did not comprehend the meaning of "three," seventeen per cent. of "four," and twenty-eight per cent. of "five." Romanes succeeded in getting a chimpanzee to hand out from one to five straws at command, but, above five, errors are frequent. So, again, many savage tribes do not count above four or five, having, like the London chimpanzee, a general conception of "many" for all higher numbers. We thus have presented a striking illustration of the unanimity of evidence drawn from many different sources. There is, however, a kind of quantitative perception, a matching of sensa-

tions, that antedates accurate counting, and the final analysis of which, still to be achieved, will contain much of value to the educator.

I have left myself hardly enough space for a mere mention of the many points of educational interest in the early growth of language; points revealing like stages and processes in the expressions and interpretations of children as in the life-history of words among different peoples; points indicating common philological traits in the language of children and of savages; points giving unexpected insight into the mental processes that accompany and provoke expression; points illustrating how differently words are assimilated by children from the meanings given them by their elders; points indicating the same peculiarities and defects in the child's expressions as in the decay of language in disease and old age; in fine, points bearing upon all the manifold interests for the sake of which language is studied. There is, for instance, the significant reduplication in infant speech, the repeating of syllables, shown by nothing more clearly than the words adopted from baby-talk, mam-ma, pa-pa, da-da; German, pu-pe, am-me; French, be bé, and the like; with the further fact that such words (according to Sir John Lubbock) are from twenty to eighty times as frequent in savage as in European tongues. Of equal interest is the origination of words by children, such as the word *mum* of Darwin's child for food, which he later adapted into *shu-mum* for sugar, and still later into *black shu-mum* for liquorice, much as the people unfamiliar with horses called them big dogs, or as a certain fruit for evident resemblances was called a pine-apple. Furthermore, there is the interesting process by which a word first associated with a single definite object attaches itself to others of the class, by which at times the designation is too wide or too narrow, or drifts into quite irrelevant channels. Mention should be made, too, of the collections of infant vocabularies, picturing the acquisition of words in children, indicating, among other things, the predominance of nouns, the effect of the ease of

pronunciation, the late use of auxiliary parts of speech, or of the first person pronoun, and so on.

I must treat still more scantily what is perhaps the most typical, most inward trait of childhood, the child's imagination. There is the vivid and peculiar mental apperception that tints and colors everything with the distinctive hue of childhood; that endows all objects, animate and inanimate alike, with such feelings and motives as manifest themselves in the child; that prompts explanations of natural phenomena, the happenings of the sky and the weather, in a way so suggestive of primitive explanations and nature myths. Closely connected with this is the early development of the dramatic instinct, converting commonplace routine into thrilling romances and interesting situations, as also the imperfect distinction between fact and fancy, between waking and dreaming, that makes fairyland hardly less real than life, and sees in actual events the stuff that dreams are made of. These and other manifestations of childish imagination abound in valuable hints, showing the similarity between the infant's mind and the infancy of mind; showing, too, how the educator may link his more artificial interests to these spontaneous tendencies of childhood and strengthen them into permanent and valuable organs of knowledge getting.

I have thus all too briefly indicated some of the points on account of which child-study claims the educator's interest, and must content myself for the rest with the assurance that further study will deepen these interests and make more real the connection between the science of psychology and the art of education.

JOSEPH JASTROW.

UNIVERSITY OF WISCONSIN,
MADISON, WIS.

V.

DISCUSSIONS.

THE PRONUNCIATION OF GREEK.

In a recent issue of the *Revue des Deux Mondes* there is a notable article, on the pronunciation of Greek, by Émile Burnouf, son of the eminent Orientalist. The special interest of this article centers in the hope of reviving and justifying the study of this "language of the gods," by treating it as a modern language and pronouncing it according to the best usage now prevailing in Greece.

The history of the pronunciation of Greek is traced, and it is clearly shown how, at the downfall of the Eastern Empire, the Greek nation, besides its material and political losses, suffered a supreme humiliation consequent upon its apparent effacement in history. Up to that time all who used the Greek language pronounced it as did the Greek nation itself. But, thereafter, even while the rediscovered texts of the ancient authors were being hailed with joy in western Europe, Greek was so pronounced as to be unrecognizable by a Hellene. The latter, speaking his own tongue, could no longer be understood by other Europeans. The principal author of this revolution in pronunciation is affirmed to have been the learned Erasmus, who set the style of pronouncing separately all the letters of which a Greek word is composed. To illustrate from the French—if a stranger to that language should say *boëuf*, he would be said to pronounce French arbitrarily. Why did the eminent classicist adopt this barbarism? He assumed that the way in which the Greeks then pronounced their own language could not be the same as in ancient times, because the prevailing custom was contradicted in various ancient manuscripts by the transcription of Greek words into Latin, and *vice versa*, as well as by the abuse of the letter *i*, which was written in several ways. Thus the custom grew up of pronouncing separately all the letters as they were pronounced in the several countries of Europe. This "Erasmian invention" was assisted by the notion that the Greek was a dead language, and should be treated as such. There

was, indeed, a scattered population, speaking a dialect which pretended to descend from the ancient tongue, but since it, like its native land, had become enslaved to the Ottoman, it was held to be of no account. As for the language of the Klephts, its existence was absolutely ignored. Their chants, so full of national enthusiasm, were not studied until after the battle of Navarino. The Erasmian method was, however, of assistance in writing Greek from dictation. In consequence, the Germans have come to pronounce the Greek diphthongs *ai, ei,* as in their *Fräulein, Main.* The French not only arbitrarily divide the simple written sounds into two letters, as *ai, ei,*—although in their own language they do not so divide them,—but they eliminate the delicate shades of several consonantal sounds, as gamma, delta, theta, and so on.

Burnouf makes merry over what he terms the still more astonishing style adopted in the English pronunciation of both Latin and Greek. He gives as his specimen the first verse of Virgil's Eclogues, recited *à l'Anglaise: Taïtire, tiou pétioulé rikioufans seub tegmini fédjai.* He adds: "The curious in phonology would be exceedingly interested in a discourse of Demosthenes or a recitation of Xenophon in the mouth of an English professor." If, then, one should listen to the same passage from a Frenchman and a German, he would hear three different discourses. If, again, he should listen to a Hellene, still a fourth would be heard. If one should listen to the Greek recited in some of the classes of the American schools and colleges, according to the so-called Continental system, he would be introduced to still more astonishing varieties, identical with no languages as pronounced, whether living or dead. At present it is the Tower of Babel come again, so far as the pronunciation of the Greek language is concerned.

Yet it must be conceded that there are no two correct ways of pronouncing a language. "Even," says Burnouf, "for Parisians themselves *Versailles* is shibboleth." Why, then, cannot scholars unite in adopting the modern pronunciation of Greek as their standard? Is it asked, is there such a standard? While there are provincial varieties of speech in Greece, as in other countries, it is held that the usage of the educated people in Greece forms a standard by which a correct pronunciation can be measured.

In the Hellenic world of to-day three stages of the language may be observed. First, the popular, full of Turkish, Slavic,

and other foreign elements. Second, the language that may be called classic, tending to purify itself by the elimination of strange words, to recuperate and enrich itself with grammatical forms which the people at large have forgotten. This is the language of the prose-writers, savants, and journalists, and is, also, the official language. Third, a romantic, literary school, the Klephtic, which aims to preserve in its poetry the language of the mountains. These three linguistic varieties, Burnouf points out, are pronounced similarly. Thus the tradition embraces the whole Hellenic nation, which fact is an indubitable sign of its antiquity.

Reference is extensively made by Burnouf to a work in "good Greek," by M. Papa-Dimitrakopoulos, who has exhaustively discussed, from the historical standpoint, the whole subject we are touching upon. This learned Hellene shows conclusively that the Greek alphabet in ancient times, as written, no more corresponded to the spoken than, we may say, does the English or French of to-day. So that it is unreasonable to see in all the letters of the alphabet signs representing distinct, separate sounds. Take, for example, as a test, *ei*, which is now pronounced in Greece as long *i*. This can be traced by a continuous tradition to be the same as *y* or upsilon, in value equal to *ê*, called by the Greeks *îta*. In the fifteenth century Rabelais' Panurge says, *tinyn*, where the Erasmian would say *toï-nun*, *anankeï*. In the church chants, as far back as the year 492, we find *ischyros* for *ischuros*, *éléison* for *éléêson*. The *Kyrie* has the same letters pronounced in the same way since the second century. A friend of Cicero, in the first century B. C., reproaches the Greeks for writing the sound *ei* in two letters instead of one. Callimachos' amorous Lysanias cries *Naikhi kalos, kalos naikhi*, and echo answers, *Allos ékhei*. So *ai* was pronounced as *e*, *ei* as *i*. Numerous quotations from the Septuagint renderings from the Hebrew prove the thesis defended by Burnouf, namely, that Greek has been spoken continuously very nearly as it is pronounced in Greece to-day.

The suggestion is further made that a convention of educated Greeks be called to discuss the subject and arrive at an understanding as to a correct pronunciation of their language, so that, provincialisms being discarded, one common pronunciation can be sanctioned and authoritatively announced. The Greeks alone, it is fair to say, united in a competent and im-

partial assemblage, can determine the values of their own letters.

By way of showing the necessity of some general agreement, Burnouf states, as his own experience, that he has always from his own faculty chair pronounced the Greek *à la moderne*, but that this example has made little headway, the general current both in the colleges and universities being the other way. If, however, it be insisted that the Greek has its claims as a modern language, why will it not be advantageous to introduce a pronunciation as the standard which will put it upon the same footing as other modern languages? I agree with Bournouf that in no other way can the study of this noblest of the classics be more surely raised to the just and elevated position which is its due. Those who have once adopted this method are strong in their testimony that they never had the true appreciation of Sophocles and Thucydides until speaking this language as it is now spoken in its ancestral home. I well remember the impetus given to my own interest in Greek by the study in college of modern Greek with that profound master of the language in all its stages, Professor E. A. Sophocles. A new interest was afterward awakened when I read the songs of the Klepths in Fauriel's *Chants de la Grèce Moderne*, a book not so well known as it deserves to be by classical scholars. The differences that exist between its language and ancient Greek are soon noted and accounted for by the student accustomed to turn from one dialect to another of the classical Greek. Such aphæreses as *den* for *ouden* and *na* for *ina* are no stranger than the Homeric *ra* for *ara*, and so on. The pathos and intensity of some of these chants are impressive, while the personification of natural objects and the human nature so frequently attributed to birds and others of the brute creation, manifest the existence in this romantic Hellenic dialect of the old Greek sense of the animate and human in natural objects.

In conclusion it is not too much to say, that if Greek is not to be allowed to die out, or to be still more closely confined to a mere coterie of philologists, its more general study can in no other way be so facilitated as by treating it as what it really is—a living, modern language.

G. C. Sawyer.

Utica Academy,
Utica, N. Y.

IMAGINATION IN MATHEMATICS.

A few years ago I was one day in a company of distinguished mathematicians, three or four of whom were authors of series of well-known text-books, when the conversation drifted into a discussion of the best method of teaching the extracting of the square and cube roots of numbers. Some of the gentlemen were in favor of deriving the rules directly from the squaring and cubing of a binomial, and others favored the derivation of the same rules from the squaring and cubing of numbers containing units and tens. I ventured to express the opinion that the most concrete procedure, and therefore the best method, was to use diagrams representing square units of surface, in teaching the extraction of the square root, and to use solids representing cubic units, in teaching the extraction of the cube root. Thereupon I was met by the objection that the processes which I recommended in teaching the extraction of square and cube roots were not right, inasmuch as they could not be applied to the extraction of higher roots. This objection pointed to a road that I had not traveled; for I had never thought of the suggested application of my method. The discussion stopped at this point; for I was too diffident or too dull to see my way clearly to answering the objection.

On returning home that evening I reflected as follows: Any number may be represented by a row of equal squares placed side by side; the square of the number will then be represented by as many of such rows as there are units in the number. Any number may also be represented by a row of equal cubes placed side by side; the square of the number will then be represented by as many of such rows as there are units in the number; this representation we may call a plinth. The cube of the number may then be represented by as many of such plinths, laid one upon another, as there are units in the number; this representation of the third power of the number we may call a cube of the second order. Since the fourth power of any number is as many times the third power as there are units in the number, the fourth power of the number under consideration may be represented by a row of cubes of the second order equal in number to the units in the given number; this row we may call a block of the second order. Since the fifth power of any number is equal to the product of

the fourth power by the number itself, the fifth power of the given number may be represented by as many of such blocks, placed side by side, as there are units in the given number; this we may call a plinth of the second order. The sixth power will then be represented by as many plinths of the second order, placed upon another, as there are units in the given number; call this a cube of the third order. The seventh power of the given number will then be represented by a row of cubes of the third order consisting of as many as the units in the given number; call this a block of the third order. The eighth power of the number will be represented by as many of these blocks of the third order, placed side by side, as the units in the number; call this a plinth of the third order. The ninth power of the number will be as many plinths of the third order, placed one upon another, as there are units in the given number. In like manner, by means of ideas of cubes, we may represent in the imagination any power of any number.

I next asked myself this question: If I have constructed in my imagination any power of a number, how shall I modify such construction so as to represent the same power of a number greater than this by a given number of units, tens, etc.? For example, if I have constructed the seventh power of thirty, how shall I modify this construction so as to represent the seventh power of thirty-five? I reasoned thus: The cube of the second order, representing the third power of thirty, must be enlarged by three regular solids, thirty by thirty by five, three thirty by five by five, and one five by five by five, in order to represent the third power of thirty-five. The block of the second order, or the fourth power of thirty-five, will now consist, not of thirty, but thirty-five blocks of the second order. The plinth of the second order, the fifth power of thirty-five, will contain thirty-five blocks of the second order. The cube of the third order, or the sixth power of thirty-five, will consist of thirty-five plinths of the second order. The seventh power of thirty-five would contain thirty-five cubes of the third order. And so we might continue the process, and represent definitely in the imagination the modification of the representation of any power of any number needed to complete the representation of the same power of a larger number.

Having thus invented a method of representing the formation of the powers of numbers through pictures created by the

imagination, I inquired how I could picture to myself the reverse process of finding the roots of numbers, when I knew only the numbers. I made my first inquiry, of course, as to a concrete case. For example, how can I find the seventh root of a number consisting of ten places? As the product never contains more places than all the factors, it is evident that the root will contain two places. As the seventh power of tens will contain seven zeros, the seventh power of the tens of the root must be found in the number left after rejecting the seven figures at the right. Having found the tens and constructed the seventh power of the tens of the root, as already explained, I set myself to find the units of the root.

It occurred to me at once that the problem was now reduced to the question of how to find the thickness of the additions which must be made to the cube of the second order, representing the third power of the tens, so as to complete the representation of the third power of the entire root, that is the tens increased by the units. It was evident that the entire representation of the seventh power of the tens might be thought of as consisting of cubes of the third order. The square of the tens would equal the number of cubes required to cover one face of one cube of the second order; the product of this square by the tens would equal the number of cubes required to cover one face of each of the cubes of the second order in the block of the second order; the product of the third power of the tens by the tens would equal the number of cubes required to cover one face of each of the cubes of the second order contained in the plinth of the second order; so the fifth power of the tens would equal the number of cubes required to cover one face each of all the cubes of the second order contained in the cube of the third order; and, finally, the sixth power of the tens would equal the cubes required to cover one face of each of the cubes of the second order contained in the block of the third order; that is, the representation of the seventh power of the tens. But in order to enlarge the cubes of the second order, additions must be made upon three sides of each: hence three times the sixth power of the tens will equal the number of cubes required to cover all the faces of all the cubes of the second order contained in the representation of the seventh power of the tens. In other words, three times the sixth power of the tens will be the proximate divisor with which to divide the remainder after subtracting the seventh

power of the tens from the number, in order to find the thickness of the additions to be made to the representative of the third power of the tens so as to form the representative of the third power of the tens and units; that is, in order to find the units of the seventh root of the given number.

Having found the units of the root, two courses were open to me: I could either go on and modify my representation of the tens so as to form the representation of the whole number, computing the value of each addition as it was made; or I could raise the whole root to the seventh power, subtract, etc.

It is obvious that the same course of reasoning would apply to hundreds and tens, thousands and hundreds, and to any other successive orders of units; and also, that when two figures of a root were found, thousands and hundreds, for example, the same process could be applied to the finding of the next figure.

In the way thus briefly and imperfectly sketched, I had, at the end of an hour, met the objections of my friends, the mathematicians, by doing the very thing which they had said could not be done. This called my attention afresh to a fact which I had often observed in city boys, namely, that they were lacking in that power of imagination which would enable them to represent in distinct forms and combinations the matter to which mathematical reasoning is to be applied. Due reflection has convinced me that the training of the imagination is too much neglected in mathematical instruction. I was able to do in an hour what, I think, as I look back upon it was a pretty good piece of arithmetical work, because I had long been accustomed to call in the aid of the imagination whenever the faculty of abstract reasoning failed.

Mathematics—arithmetic in particular—has three fairly distinct stages in each of its departments, the stage of direct observation, that of representation, in either memory or imagination, and that of abstract reasoning. These stages of learning should follow one another in the order named. The first step was formerly much neglected. Of late years, in my opinion, the second step is most neglected. Observation is often carried to an extreme length. When the pupil has observed numbers sufficiently to fill his mind with all needed ideas, it is better to call frequently and seriously upon his imagination. When reason halts, it is often much better to

fall back upon imagination than observation. In the example described in this paper observation would have been impossible. It often happens that creations of the imagination are much better than real objects, as a means of discovering relations between them, because they are transparent. They are better for another reason, they are, or may be, ever present. Then again, they are inexpensive. Above all, they require closer attention.

I believe much time may be saved and much clearness of insight gained in learning the simple rules of arithmetic, compound numbers, common and decimal fractions, and, indeed, all parts of arithmetic, not to speak of the higher mathematics, if the use of the imagination is fully recognized by the teacher and made to perform its proper work.

LARKIN DUNTON.

NORMAL SCHOOL,
BOSTON, MASS.

THE RESULTS OF THE PRUSSIAN COMMISSION ON SCHOOL REFORM.

The final conclusions of the Commission show that the Emperor's position was in the main well taken. The loud echo of approval from parents and the public, which followed his memorable speeches, is now succeeded by a syllabus of reforms, which is, as far as it goes, in harmony with the royal views, and which was voted by the Commission with singular unanimity. It is evident that there was much clashing of views in the course of the deliberations, for the monarch, in his speech at the close of the proceedings, (December 17), addressed his thanks particularly to those "who have sacrificed their previous practice only after serious inward struggles." But there is nothing to indicate that the published conclusions do not represent the deliberate convictions of the Commission.

The practical results may be summed up as follows: the higher schools as a class are now simplified by getting rid of the Realgymnasium; more freedom is allowed in adapting the hitherto unvarying school-curriculum to local needs; the institutions which have courses covering nine years (Gymnasia, Oberrealschulen) are to be freed from the burden of a large

number of pupils who belong elsewhere; the pupils themselves are relieved from labors now recognized as useless; more attention is to be given to physical culture and school hygiene; the study of modern languages is put on a better footing; and the condition of the whole body of teachers is to be improved, both intellectually and financially.

These reforms reach out far beyond direct educational interests, and will profoundly influence the whole life of the nation. Hitherto, graduates from the Upper Real-schools have been debarred, in whole or in part, from positions under the government in the postal service, and in forestry, mining, and architecture, not to speak of public service in the so-called learned professions. The Higher City Schools (Höhere Bürgerschulen) have hitherto not qualified for subaltern positions in the various state bureaus. If, for instance, a large mining town, possessing no higher school of any sort, set about providing a Higher City School, the tax-paying parents were met by this provision, which effectually prevented their children from rising in the government services. As a result, such towns were sometimes induced to support a costly Gymnasium or Real-school, in place of the institution they needed, and these stood empty the whole year round, because the population had no use for the higher education they afforded. The fact that the Higher City School did not qualify for the privilege of one year's service in the army (instead of three) has overcrowded the lower classes of the Gymnasia and Real-schools with an undesirable class, who merely "sat out" the privilege there, disappeared after Lower-secunda, and left the three highest classes meagerly attended.

All this is now changed. Gymnasia, in which the three highest classes are very small, are to be converted into Higher City Schools. In cities where several Gymnasia exist, one of them is to be changed into a Higher City School. In places where no higher school has yet been founded, the preference is to be given to the Higher City School. In such a case instruction in Latin is provided in the lower classes for the minority who are preparing for a higher training. The teachers of higher branches in the Higher City Schools, as well as in all schools with a six years' course, are to receive equal pay with teachers in the schools with a nine years' course. It is proposed to dignify the Higher City Schools with the name Real-school,

which shall at the same time indicate its relation to the Upper Real-school.

Finally, the certificate of proficiency given by the Higher City School will now qualify the pupil for any subaltern position under the government, and also confers the coveted privilege of one year's military service.

The certificate of proficiency given by the Gymnasium at the end of the course remains the recognized gate of entrance to the university and to the higher public service in church and state. The certificate of the Oberrealschule qualifies for entering the schools of technology, the schools of mines, architecture, forestry, and the postal service. It does not admit the candidate to university courses in general, but merely to those in mathematics and in natural science, and even to those only when the Realschule has provided instruction in Latin. This it will be able to do during the period of transition, since the Commission, following out the Emperor's suggestion, recommends forbearance and conciliation in carrying through the reforms; but the ultimate purpose of the regulation is clearly to debar the graduate of the Oberrealschule from the university, should he not subsequently attain proficiency in Greek and Latin. On the other hand, the Commission makes it at least possible for a graduate of either Gymnasium or Realschule to change his whole future career by admitting him to state examinations in subjects not covered by his certificate of proficiency. If his proposed change of plan for life should necessitate only a moderate amount of additional acquirement, before entering upon special studies, the Board of Control may, at their discretion, relieve him from further examinations.

The examination at the end of the school course is retained, but it now assumes the simple form of a graduation from the highest class (Ia) and must be confined to the material taught during that year. No candidate can be excluded from this examination, except upon the unanimous vote of the school faculty. The Latin essay, as a part of the examination, is dropped; and this regulation, unlike the other provisions of the Commission, is to take effect at once.

The candidate will not be tested in speaking Latin, and the Greek exercise in the examination at the end of Secunda is no longer required. The scope of the written examination in the exact sciences is more sharply defined. The other provisions

for the final examination are of less weight, when considered singly; but taken as a whole, they afford considerable relief to the perplexed and overburdened candidate.

It was mentioned above that the Realgymnasium (which provides a nine years' course, with no Greek, but with Latin six hours weekly during the whole course) is to be abolished as soon as practicable. This leaves Greek and Latin the characteristic difference between the Gymnasium, on the one hand, and the German schools (Oberrealschule and Höhere Bürgerschule), on the other. The courses in these two classes of schools are to be quite distinct from the very beginning, except where local circumstances imperatively call for a partial amalgamation. These provisions constitute the first two regulations adopted by the Commission.

The succeeding paragraphs (III. and IV.) are concerned with reforms in the Gymnasium. A reduction in the whole number of hours of instruction is pronounced desirable. This must fall partly on the classics and partly on other branches. The instruction in ancient languages may be imparted in a shorter time, if the study of the classical authors themselves be regarded as the chief object, and the grammatical exercises be made use of chiefly as means to that end. The writing of an essay in idiomatic Latin no longer constitutes the final aim of the Latin instruction.[1] The Greek exercise, as a test for entrance to the highest class (Prima) is dropped. The introduction of English in the gymnasial course is recommended. It may be compulsory or optional according to local conditions. Drawing should be dropped in Sexta but made compulsory in the classes from Quarta to Upper Secunda, inclusive. The greatest stress must, under all circumstances, be laid upon instruction in German. The number of hours is to be increased, wherever practicable, but above all a greater degree of facility in the use of German is to be striven for in class work in every branch of study, and especially in translations from foreign languages. The recent history of Germany is to receive more special treatment. This is to be accomplished by a proper limitation of other historical material, and without increasing the number of hours already devoted to that subject.

The decrease in the number of hours per week devoted to instruction, now proposed, must not result in increase of work

[1] This no doubt is the meaning of the unusual expression, "Der lateinische Aufsatz kommt als Zielleistung in Wegfall."

at home. The resulting transfer of the bulk of the work to the school, asks for an improvement in the method of teaching, an improvement which cannot be fully realized, unless both teachers and scholars fulfill what is expected of them. This makes certain preliminary conditions indispensable, though local circumstances may limit their strict application. These conditions are (besides the obvious one of a smaller number of pupils, both in each class and in each institution): preparatory training of teachers in pedagogics; raising the social position and pay of teachers as a class; limiting the number of specialists, who impart instruction merely in single branches; greater responsibility of the class teacher for the prosperous condition of his pupils, both physically and mentally; attention to games and daily physical exercises; further development of instruction in light gymnastics,—this instruction to be given by teachers of the school; instruction, both to teachers and scholars, in school hygiene; employment of a school physician; open-air instruction in natural science, as well as in the geographical and historical study of local surroundings (Heimatskunde).

It is declared that the higher schools are able to influence the moral training of their pupils, by general discipline; by fostering a religious sense through religious teaching, through suitable public religious exercises and in the explanations of authors read in class, by ready and sympathetic attention to the individuality of each scholar, where the classes are not too large, by curtailing the employment of outside specialists and by the moral example of the educator himself.

The school is to aid the family, wherever possible, in the care and discipline of the pupils out of school, by discreet visits in families, in the school arrangements, and on the occasion of public school exercises. Parents are to be encouraged to meet the school half-way in this intercourse.

It will be the duty of the school to promote in every way the highly important religious instruction preparatory to confirmation, and to provide suitable hours for the same. It is also recommended that each school day be begun with brief devotional exercises.

The number of scholars in each class must not exceed 40, and 400 is the limit fixed upon for each institution. In the upper classes, a division into two sections is to be avoided, wherever possible. More than twenty-two hours' instruc-

tion must not be required from any teacher in the higher schools.

The scientific training of future teachers, hitherto given by the university, is pronounced sufficient, in the main; but the need of methodical plans of study, as a guide to students, is emphasized. The university should also provide for the practical carrying out of these plans. The value of archæological studies, and of university traveling scholarships, is recognized. School instruction in modern languages is to lead to a free use of them in speaking and writing. University instruction in the same subjects ought to increase this facility.

In Germany, public discussion of these resolutions has proceeded from every class of society, and has embraced every conceivable shade of opinion. The most authoritative utterance remains the protest on the part of the faculty of the University of Berlin against relaxing the thoroughness of classical training as a preparation for the university. This was given out during the proceedings of the Commission in December. It remains to be seen whether the published recommendations of that body are calculated to allay the apprehension expressed. There may be no significance in the fact that the university of the capital is not represented in the committee which has since been appointed to sift the results of the Commission and to visit certain model schools, with a view of making further recommendations. It is to the labors of this committee that we must now look. The practical difficulties in the way of carrying out certain of the provisions are great, and the limit of time (April 1, 1892) is very brief; but there are no indications that the German public, at large, has lost faith in the near realization of the chief reforms. The members of the committee are: Dr. Hinzpeter of Bielefeld, former tutor of the Emperor, chairman; Dr. Schrader, curator of the University of Halle, deputy chairman; Dr. Fiedler of Breslau, director of Oberrealschule; Dr. Graf, a distinguished physician of Elberfeld; Dr. Kropatscheck of Berlin, formerly professor in one of the Berlin colleges, and now a distinguished member of the Conservative party in politics; Dr. Schlee of Altona, director of Realgymnasium; Dr. Uhlhorn (Protestant), abbot of Loccum.

The reader will have been struck by the fact that many of the recommendations of the Commission tend to bring the German higher schools down toward the healthy level of the best of our American colleges. The standard of our foremost insti-

tutions is hardly inferior to that now held up by the Commission. But the chief difference will be, that in Germany the governmental control will bring all schools up to the mark, while in this country most of the colleges, a few of the best excepted, will fall below it.

Many of the questions discussed by the Prussian Commission have long been ventilated in this country, and some of them have been satisfactorily settled. The students of our colleges can certainly not complain that too much stress has been laid upon Latin essays, or that physical culture has not received adequate attention. But there is one special feature in our collegiate institutions which it might have been useful for the Prussian Commission to consider. I mean the elective group system, an adaptation of which to the German schools might have enabled the members of the Commission to carry out most of the needed reforms.

HENRY WOOD.

JOHNS HOPKINS UNIVERSITY,
BALTIMORE, MD.

VI.

EDITORIAL.

The work of the Bureau of Education at Washington is not well enough understood by those for whose benefit it has been undertaken. Neither the people at large nor the special students of education seem to appreciate fully the character and scope of the Bureau's unostentatious activity. The educational library that it has built up, while far from complete, is one of the most useful and accessible in existence, and is being added to as rapidly as the rather meager annual appropriations will admit. It now contains more than thirty-eight thousand volumes and over one hundred thousand pamphlets. All of these are carefully, even minutely, catalogued and indexed, and are at the disposal of any student who wishes to consult them. At the present time an effort is being made to procure complete sets of the text-books in general use abroad. The value of such a collection is apparent. An educational museum has been begun, and might soon surpass those of Europe, if proper accommodations were provided for it by Congress. A well-arranged and classified collection of school furniture, apparatus, and illustrative material is very instructive, as visitors to such museums at Paris and St. Petersburg well know.

The correspondence of the Bureau is very large, and rapidly increasing. Last year more than sixty-two thousand letters were handled, and over three hundred and forty thousand documents. The publication of some important monographs, as well as the second part of Mr. I. Edwards Clarke's splendid work on "Art and Industrial Education," has been delayed by the great pressure at the government printing-office. But monographs may soon be expected on "The Training of Teachers in the United States," "School Savings Banks," "Physical Training in American Colleges and Schools," "Spelling Reform," "University Extension," "Teaching of Biology in the United States," and other topics of general interest and importance.

There is one other feature of the Bureau's organization which seems to be of peculiar value. That is the presence there

of a corps of trained and accomplished specialists whose duty is to keep close watch on important developments of educational thought and practice in every part of the world. In this way the Bureau keeps its finger on the pulse of the world's educational activity. These specialists are thus enabled to prepare very promptly accurate reports on any subject referred to them, as well as to answer questions on subjects falling within their range, whether propounded by a state legislature, a superintendent of schools, or a university professor.

The teachers of the country owe it to themselves to sustain the Bureau, to avail themselves of its advantages, and to assist in building up a public sentiment that will be strong enough to induce Congress to support this important work by more liberal appropriations.

It was announced some weeks ago that at a recent conference of the head masters of English schools a resolution was introduced favoring the omission of Greek as a compulsory subject at the universities, and that the resolution was strongly supported. The full report of the proceedings of the conference has since appeared in the *Journal of Education*, and is very interesting reading. The resolution in question was introduced by Mr. Welldon, of Harrow, whose influence as an educational leader is by no means dependent upon the important position which he occupies. It read as follows: "That in the opinion of this Conference it would be a gain to education if Greek were not a compulsory subject in the universities of Oxford and Cambridge."

In support of this resolution Mr. Welldon argued that it would not tend to lower the standard of intellectual efficiency in the public schools of England. It would largely increase the number of pupils who avail themselves of the benefits of a university education. At the present time, more than half the boys in seventy-five of the schools represented in the Conference were not studying Greek. Under the present system these pupils were excluded from the universities. In Germany and in the United States there was a strong movement in favor of relaxing the requirements in Greek. For students of medicine and of natural science, for boys preparing for the Indian civil service or for business, the enforced study of Greek was a positive drawback. He held the passage of the resolution to be a considerable step forward in the cause of educational reform.

Mr. Bell, of Marlborough, proposed an amendment, or rather a substitute, to the effect that a knowledge of Greek should not be required of any candidate for admission to the universities who passes in Latin and gains distinction in mathematics and natural science. Dr. Percival of Rugby had still another amendment, to the effect that a student not passing in Greek, should pass in Latin, French, and German, and gain distinction in either French or German. The discussion which followed was conducted on the lines that we are very familiar with in this country. The really able, progressive thinkers in the Conference were in favor of Mr. Welldon's motion. The opposition consisted in prophecies of woe and disaster if Greek was no longer required, and assumed, without proof, as is usual in these arguments, that a smattering of Greek in some mysterious way gives a culture and discipline not otherwise attainable. On the vote, both of the amendments were defeated, and finally the original motion was lost by a vote of 31 to 29. As the editor of the *Journal of Education* remarks, another such victory for Greek would be fatal to its cause, for if votes had been weighed, and not counted, the motion would have been easily carried.

It is necessary to bear in mind, when judging of a discussion on this topic, that the most earnest opponents of compulsory Greek are those who prize most highly the service of ancient Greece to civilization. It is in the interests of Greek itself, and of its more thorough and loving study, that such motions as Mr. Welldon's are made. Those who insist that every college and university student must study Greek, whether he wishes to or not and regardless of the career that he has chosen, are short-sighted in the extreme. They are claiming for their favorite study an interest and an importance which it cannot be shown to possess, and they are denying to the modern languages and to natural science a value and a significance, both for culture and for discipline, which they certainly have. The case for compulsory Greek rests on sentiment, not demonstration.

It is quite within the truth to say that for several years past the most important contribution to the literature of higher education in this country has been the annual report of Presi-

dent Eliot of Harvard University, together with its voluminous appendices, tables, and statistics. The report for 1889–90 has just been printed, and is of more than usual interest. Almost every year sees some change, great or small, in our college and university organization, for we are still groping for the best and most useful system. Nowhere have the various problems been met more systematically and courageously than at Harvard, and while exception is often taken to some of the solutions there reached, no one can deny that a consistent, coherent, and successful university organization has been built up. The Harvard plan merges the college and the university. They are distinguished in degree, rather than in kind. There is no sharp line, indeed no line at all, unless the conferring of a baccalaureate degree be so regarded, between the graduate and the undergraduate student. The gradation is easy and natural from the freshman class to the attainment of the degree of Doctor of Philosophy. One academic body supervises all of the courses of instruction that intervene.

This system results in a university course of six or seven years' duration. The crucial question is, are the students properly equipped for entrance upon such a course at the time that they leave the fitting school? It is usually held that they are not; that a strict disciplinary course in a college, where much if not all of the work is required, is first necessary. At Harvard, on the other hand, the question is answered in the affirmative, and the young man is led on, through a series of courses selected by himself, from discipline and information to criticism and research. While critics of this system are numerous and emphatic, they are not always well-informed as to what the "Harvard plan" which they denounce, actually is, nor are they always careful to examine the official reports in order to learn how many of their objections have been shown by experience to be groundless.

Of the 402 students who enrolled themselves at Harvard for the first time during the last academic year, 95 came from public schools, 86 from endowed schools, 82 from private schools, 54 from tutors, and 85 from colleges. One hundred and thirty-two different schools and colleges were represented in the list. Inasmuch as school graduates are not admitted on certificate, but only after a rigid examination, this is a

remarkable showing. Since 1886, it will be remembered, an examination in Greek has not been required for admission. Yet in 1890 only 31 candidates, or 8¼ per cent. of the whole number, offered the permissible substitutes for Greek.

It is also noted that one effect of the elective system has been to start a movement away from instruction organized by years of the college course and toward instruction organized by departments of study. Whether this was originally contemplated or not, it is a most important development; for the unnatural and illogical character of the rigid class system is coming to be recognized as one of the serious obstacles to the improvement of our college teaching. It is remarkable that the principle which works so excellently at the University of Virginia, has not been applied more extensively elsewhere.

University students will be glad of the admirable definition of "Seminary," given by Dean Smith in his report to President Eliot, which appears as an appendix. It is this: "A course organized for training in research, with stated meetings at which the students present for criticism and discussion the results of their studies." The same officer throws much light on the recent proposition of the faculty, when he says that "it is not correctly described as a proposition to reduce the college course to three years. It is a proposition to make it possible, by a moderate reduction of the requirements for the degree,—which would still leave the standard of the degree considerably higher than it was twenty years ago,—for those students whose best interests are served by their graduation in three years to do so under advantageous conditions. It cannot yet be looked upon as a definite or final solution of the problem as to the relation of the college to graduate and professional studies. It is in the nature of a cautious experiment."

For the first time, we believe, the annual income of Harvard has exceeded a million dollars. In 1890 it was $1,013,306.33; of which $162,225.49 was in the form of gifts for immediate use, and $361,618.37 was collected in fees from students. The gifts for capital account during the year amounted to $277,282.03.

One effect of the recent political upheaval in the state of South Carolina has been a change in the educational conditions of that state, which many intelligent citizens think is distinctly a step backward. For some time past South Carolina has been building up, slowly but surely, an educational system of considerable scope and strength. It had not by any means reached its ideal. There were few professionally trained teachers in the state and there was no normal school. Furthermore, the school session has been of an average length of not more than three months in each year. The state superintendent of schools has not always been an educator of recognized standing and capacity. Such teachers' institutes as have been held were not of the most helpful kind, and the feeling has found expression that the money spent for county institutes was almost entirely wasted. Such state institutes as have been held were supported by the trustees of the Peabody Fund. The only professional schools in the state have been a medical school in Charleston, a law school at Columbia, and the theological seminaries supported by the several religious denominations.

All of these institutions, and various other elements, were working together successfully for the improvement of the educational status of the community when the recent political movement commenced. A training school for teachers had been established under most competent direction. A state university was in operation which commanded the respect of older institutions, and by reason of the ability and energy of its faculty was rapidly extending the sphere of its usefulness and influence. It comprised departments of Greek, Latin, modern languages, the English language and literature, history and political science, logic and rhetoric, mental and moral science, mathematics and astronomy, physics and chemistry, geology and mineralogy, biology, hygiene, bacteriology, agriculture, agricultural chemistry, veterinary science, pharmacy, mechanical engineering, materia medica, pedagogy, and law. Its scientific departments were equal, if not superior, to all similar departments in the South. The department of pedagogy had become the foundation upon which a model normal school could have been erected. The state teachers' institute of last year was of a high character. The trustees of the university were in favor of throwing open to women the doors of the university normal school, together with those of several

other departments. There was every promise of having not only a valuable normal school at the university, but carefully superintended institutes under the direction of the officers of that school.

All this broad and generous development has, however, been brought to a standstill. Not one dollar has been appropriated for teachers' institutes. The Winthrop Training School has been dismissed with a pittance. The university, as such, has been abolished, and supplanted by a literary and classical college. To compensate the state for the destruction of this most valuable educational institution, very little that is tangible has been done. All the income of the state that is available for such a purpose, has been given to an agricultural college, as yet a mere phantom, having no existence, except in the imagination of its projectors and in a few uncovered walls in a remote corner of the state. It is difficult to see what motives that are commendable could have led the new political leaders to enter upon this policy. It certainly will be some time before the old commonwealth can enter again upon the promising path of educational development from which she has just been turned.

The points of contact between politics and education are already too numerous, and if the state undertakes the manufacture and supply of text-books, as is now being urged in various legislatures, they will be considerably increased. It is asserted in many parts of the country that the people and the schools are being forced to contribute enormously to the profits of the publishing firms, and that no relief can be expected unless the compilation, publication, and supply of text-books are carried on under state supervision and direction and at state expense.

Even granting the premise, which may be disputed with some success, the conclusion does not necessarily follow. A careful study of the experiments in this direction that have already been made would certainly shake the confidence of any unbiased mind in the measures that are proposed. The materials for such a study are furnished in a valuable article on the subject by Professor Jenks of the Indiana State University, which is printed in the current issue of the *Political Science Quarterly*. Professor Jenks views the question as a problem in

social science rather than one in educational administration, yet his facts and conclusions are distinctly of value to those who approach the subject on its educational side. He describes carefully the steps that have been taken in California, Minnesota, Indiana, West Virginia, and elsewhere, toward state control of the text-book supply, and reaches the conclusion that advantage in price, when it exists, is gained at the expense of the quality of the books. The result in California, where the books are manufactured by the state, is that the expense is not directly reduced, and the books are of an inferior quality. In Minnesota, where all the books are furnished by one contractor, the cost to pupils has not been reduced below the rates at present offered by private publishers, and many of the books are unsatisfactory. In Indiana the contract system has been successful in lessening prices, but the books are not the best possible. With this experience before them, legislators should act very cautiously on the many radical measures now being pressed upon their attention.

On the 4th of February Mr. Charles F. Thwing formally entered upon his duties as president of Western Reserve University and Adelbert College, at Cleveland, O. His inaugural address was an eloquent statement of the relation in which the college stands to the community. It was a plea for generous popular support of higher education, in return for the benefits that the colleges confer upon the people. The college was commended as an investment, because of its ability to use money for the formation of intellect and character. Speaking of his own institution, President Thwing forcibly said: "It has no prejudices to nurse, no heresy to teach, no schism to perpetuate. This college and university are for the people; not for the poor as poor, not for the rich as rich, but for men and women as men and women. They wish to maintain in this many-college state a high ideal and a noble achievement of college and professional education. To every agency like themselves they stretch forth a hand of heartiest co-operation."

VII.

REVIEWS.

Webster's International Dictionary of the English Language, being the Authentic Edition of Webster's Unabridged Dictionary, Comprising the Issues of 1864, 1879, and 1884, now thoroughly Revised and Enlarged under the Supervision of NOAH PORTER, D.D., LL.D., of Yale University, with a Voluminous Appendix. Springfield, Mass.: G. & C. Merriam & Co., 1890, pp. xcviii, 2011.

"Webster's International Dictionary, the Authentic Unabridged, revised and enlarged." This looks like the origin of a new species. The genus Webster appeared in the form of "An American Dictionary," with American writ large, and a patriotic preface setting forth the necessity for it. The volumes of 1828 have grown to great bulk, and, under the skillful hands of G. & C. Merriam, given rise to many varieties. The Unabridged Webster has become an authority among all English speaking peoples. And so the time has come for an International Dictionary. The copyright upon the original Webster's Unabridged has expired and strange publishers have reprinted it and are selling it at cheap prices as the genuine Unabridged. The first use that many a man will make of the Authentic Unabridged will be to look up *authentic*. The editors would have saved many a worry if they had given their title as an illustration under the meaning of *authentic* which they intend it to bear.

The Merriams are, in good comity and morals, entitled to claim for the International its due succession to the authority, the rights, and honors of the Unabridged. The success of the Webster books has been greatly due to them. The International has been prepared, they say, to meet "the severer requirements of a new generation." The work upon it has been in progress over ten years, not less than one hundred persons have done paid editorial labor on it, and more than $300,000 was expended in editing, illustrating, type-setting, and electrotyping it before the first copy was printed.

The general character of Webster's Dictionary is familiar to every one. It tries to give under each word just what the common reader is likely to wish to know about the word and

about the objects denoted by it. Students of language have criticised it often as going beyond the province of a dictionary, mixing up the encyclopædia with it, and the like. But beyond all question it is a very convenient kind of book. Webster himself had genius in this line, a peculiar felicity in hitting on the right facts to bring in, which has been caught by the revisers and enlargers of his book. So that one who uses many dictionaries recognizes the Webster type at once. Several English dictionaries have been made like it with good success, and the Germans, who esteemed it so chaotic and unscholarly at first, are now publishing a German Webster by Moriz Heyne, one of the most efficient collaborators of the great Grimm Lexicon.

The first matter in the dictionary to which attention is drawn is the vocabulary. In the early editions the effort was to add new words. They ran up from 60,000 to 110,000. But now the Century promises 200,000 words, and Dr. Murray more than a quarter of a million. These are too many to be handled in a single volume. The old Webster was as large as could be raised with one hand. The International has been obliged to use higher powers than were required to work the drag net, to use reason, judgment, to reject and to select from these hosts. We have compared considerable portions with the Encyclopedic and the Century and Dr. Murray, and are well pleased. No words are rejected which it is plain that readers will look for; there are very few here which are not interesting to some class of readers.

Going over the columns in this way, however, the enormous number of technical terms in the natural sciences forces itself on the attention. The thousands, tens of thousands of names of natural objects, not names used in real life, but closet compounds of words fished from the Greek dictionary, many of them never uttered by any human being, stagger one when he meets them in such force. In spite of a strong prepossession in favor of having such words in Webster, a doubt has arisen whether this side of the vocabulary may not be overdone; whether there has not been a change, since the plan was formed, in the popular interest in these sciences of classification. Has not the Darwinism, which so stimulated interest in all living things, become rather an old story? Are not our lively minds, readers and thinkers, now turning to the proper study of mankind, man, and looking up technicalities in psy-

chology, ethics, political economy, civics, history, literature, linguistics? It is true, however, that there has been copious cutting out of natural names and much care of the others. We do not find any single word which we wish to comment on as showing bad judgment in the admission or rejection.

The same selection and condensation has been used in the definitions. Nothing could well be better than a large part of them. But any verbal definition or description may fail to give a good idea of the object named. Here, then, are pictures to help out, greatly improved in fitness for their purpose, and greatly increased in number compared with the old Unabridged. For objects that cannot be pictured there are quotations which show the thought in its relations; the current phrases help out also, and they are given in large numbers. We have noted the special difficult words which have come up during the examination of the dictionary. The first word was *authentic*, which was mentioned above, the next was *copyright*. Wondering how long time the Webster copyright ran, I looked in the Century first and then in a cyclopædia without finding it, and was about to take up a law dictionary, when it occurred to me to try Webster. There it was, all right, simply, precisely stated: Twenty-eight years with a renewal of fourteen. This is an experience which I have had a hundred times with the old Webster: a search through all the cyclopædias in the college library in vain, a find in Webster at my elbow. This quantitative definition of copyright, true scientific work, exact figures, has been added in the International, and is a fair specimen of it. Then *pons asinorum* turned up in the New York *Tribune*. A good many college graduates seem to remember no other demonstration in geometry than the forty-seventh in Euclid, and no other title than *pons asinorum*, and they put the two together. The dictionaries are all alike about the meaning, but the International pleased me well by having a diagram of the fifth, the true *pons*, looking quite bridgy. About the same time the *Sunday School Times* wanted to know whether *tireless* was a good word. It is not in the International, though it should be, as it is found in Bishop Heber and other classics, and is a good word every way; *untireable* will not do; nor *undauntable* for *dauntless; irresistible* might do for *resistless;* this use of *—less* is well established—*exhaustless, quenchless*, etc., are questionless,—and it ought to be given under the suffix *—less*, but it is not in the International. The

absence of *tireless* was doubtless an oversight as it is not in the other dictionaries, except the Encyclopædic. Worcester uses it, to be sure, to define *untirable*. *The Independent* asked about "peevy," the name of a tool for handling logs. The International knows it not, nor does any other dictionary, except Bartlett. It is a common tool in these days of telegraph poles and log-rolling generally, and its inventor, Mr. Peevy, deserves a dictionary immortality. An inquiry from England about "*condition*," as used in American colleges, found the verb *condition*, but not the noun *conditions*, back studies. *Tangerine*, the fruit, is given, but not *ekemis* and *elemi*, names of figs; *Kodak* and *hoodoo* have not reached the dictionaries, nor *sheeny*, which figures in one of the New York pictorials, and is in Bartlett. But the International is very good on American uses of words, and all the "questionable" current speech.

On the philological side there is considerable change in the new book. The brief history of the language by Professor Hadley, a masterly sketch, has been skillfully touched up by Mr. Kittredge, of Harvard. The introductory discussion of pronunciation has been greatly deepened and widened by Professor Samuel Porter, and stated in the language of Mr. Bell's system so far as that applies. Professor Porter is an independent thinker, and a minute and accurate observer. This introduction is a capital treatise of phonetics. A body of rules for syllabication in agreement with pronunciation is given, and the vocabulary words are carefully printed in syllables, and accented. This will please the teachers. The great phonetists may say, if they must, that syllables are imaginary divisions, and the philological dictionaries, like Dr. Murray's, may decline to indicate syllables even in the pronunciation; but they are very real in the school-room in teaching, spelling, and pronunciation. The Webster convention about them, even if it is nothing more than a convention,—a view which we do not accept,—has been a powerful influence upon the speech of America for distinctness and uniformity, and it is indispensable in the school-room.

The International respells the words for pronunciation, an acceptable addition to the old Webster, and it indicates the pronunciation of the unaccented syllables with a nicety never attempted in the old dictionaries. The means of indication are very ingenious, and easily understood by any one who

pronounces the key words correctly. There is seldom more than one pronunciation given in the vocabulary, but there is a table of words differently pronounced. The vowel gamut is English. The scientific terms and other book words which have no folk-pronunciation are pronounced like Latin, as heard in the English method. The great number of scientific men of foreign blood among us, and of the Germanized scientists of home blood, and the Roman pronunciation of Latin in the schools, are fast rendering this pronunciation of scientific terms strange; it has always been very rare. But it would not have done for a Webster to displace it.

The International is English also in adopting lightened pronunciation, obscure and abbreviated syllables, more freely than the old Webster. The Southern English pronunciation of this sort has been heretofore ridiculed among us, and vigorously corrected whenever it has appeared in our schools. But the London phonetists have lately made a vigorous crusade for it as spoken English by eminence. There ought really to be a distinct recognition of two kinds of pronunciation: one, the standard literary English of oratory and pedagogy; the other, allowable weakenings in conversation. Prof. Whitney has made a notable attempt to represent both in the pronunciation of the Century dictionary. His scheme is certainly scientific, and it seems to be successful, a good advance beyond the single obscured pronunciation indicated as the only one in the International. This will embarrass many a teacher in the spelling classes, and tend to weaken the distinctness of articulation characteristic of the American schoolmistress. She will be slow to understand that *cent* does not spell *cent* in *recent*, and shrink from *resunt* as much as from *sullur*.

The etymology of the International is excellent; simple, clear, and according to the latest authorities. We mean the etymology in the body of the work. It is notable, however, that its relation to the rest of the work has been inverted. The world has changed since the great eponymus of the American dictionaries retired to Amherst with his houseful of lexicons, and devoted his ten best years to making a synopsis of all the languages.

The well-known appendixes of proper names and phrases and all sorts of useful knowledge are retained in full force, revised and enlarged by the ablest scholars.

F. A. MARCH.

The Defense of Poesy: Otherwise Known as an Apology for Poetry. By Sir PHILIP SIDNEY. Edited with Introduction and Notes by ALBERT S. COOK, Professor of English in Yale University. Boston: Ginn & Co., 1890, pp. xlv., 143.

Professor Cook's monograph will serve the excellent purpose of introducing to American readers an exhaustively edited classic, once far more read and remembered than now. Sir Philip Sidney in his day was "the plant and flower of light" of Elizabethan courtesy. His three-and-thirty years were filled to overflowing with aspiration and attainment, with venture and vicissitude. As one looks on his young face, brilliant with intellect and life, it seems prophetic of what it really accomplished; a poet's face encircled with the Tudor ruffles, refined, —spiritualized, one might say,—almost to effeminacy, yet full of lines of daring and strength. Looking on this likeness, as it lies engraved on the pages of Languet's *Correspondence*, we see the ideal of Edmund Spenser, we understand the vivid longing that he felt to "company with" Sir Francis Drake; we hear the author of the celebrated prayer used by Charles I. on the scaffold; we instinctively feel the poet of the Arcadia and the "Apologie for Poetrie." The speaking similitude of him by Oliver in the same book, images forth the lineaments of the poet's soul as no after generation has caught them; and it is this beautiful soul whose fragments Professor Cook picks up and enurns, as Victor Hugo says:

> D'en faire une urne sainte à contenir l'extase.

The shrine is worthy of the saint whom it tabernacles, and in Professor Cook's hands it has been chiseled and wrought with every delicacy of treatment. The pedagogical value of thorough editions like this of Elizabethan and Jacobean classics is always great. The English soul in these times was all on fire; there is a throb in the prose which no other epoch can imitate; a power and a pulsation in the poetry which is very near the arterial current of things. In *The Defense of Poetry* we have one of the finest examples of emotional, palpitating English prose, fresh from those laboratories where poems, too, are wrought. The land of Astrophel lies close to Arcady, and both slumber in the perpetual sunshine which alone can ripen the radiant vintage of the soul. How steeped Sir Philip was in this sunshine, in antique lore,—in Aristotle no less than in the suaver atmospheres of Plato; how in all probability his

wings were tipped with iridescence from Dante's plumes; how his spirit drank of Greece and Rome with a thirst unquenchable, and assimilated the potion in every fiber as a spiritual philter; how he snatches a few sentences from the *Ethics* and the *Poetics* of Aristotle, and then elaborates them into a cunningly contrived framework for his definition and defense of poetic art, as Spenser utilized the Aristotelian classification of virtues for the vast enginery of the *Faërie Queene:* all this is skillfully brought out in an instructive Introduction, fortified by detailed Notes, leaving hardly anything untold that the student-reader needs for his orientation. The "normalization" of the spelling is another help to readers who do not care to flounder round in Tudor cacography; besides, Professor Garnett, in his *English Prose from Elizabeth to Victoria*, just published, gives the general reader all that he needs of the "original" orthography. In his analysis of the *Defense*, Professor Cook runs his scalpel all through the anatomy of the structure and reveals its architectonic principles; not a tower of Bel or of Babel, speaking confused languages, but a Giotto tower, full of beauty and reminiscence, full of art and intellect, a masterpiece of intellectual engineering, constructed after subtle plans known to the Elizabethans alone. The most valuable part of the essay, however, is that from p. 44 on, which treats of English poetry—drama, lyric, and narrative—as it appeared to Sidney, English diction and versification, accent and vocabulary. These pages throw abundant light on "how a contemporary viewed it," and incidentally admit us into Sidney's own *atelier*. He wrought according to a plan, not like Lope and Hugo when they wrote:

> Quando he de escrivir una comedia,
> Encierro los preceptos con seis llaves.—*Lope.*

Sidney's "six keys" are all revealed, and they open the very sanctuary of his soul.

In the numerous and explicit notes we notice little ground for animadversion. The editor's remark that *atheism* occurs for the first time in this essay (p. 109) may be supplemented by saying that two examples of *atheist* occur in Lyly's Euphues (Arber's Reprints, pp. 15 and 177), a trifle earlier.

JAMES A. HARRISON.

Gustavus Adolphus and the Struggle of Protestantism for Existence. By C. R. L. FLETCHER, M.A. New York: G. P. Putnam's Sons, 189 , pp. xiii., 316.

Under the above title Mr. Fletcher contributes to the series, the "Heroes of the Nations," a sketch of the one man who could have been selected as best representing the Swedish people at the highest point of their national greatness. The figure of Gustavus Adolphus, in its sharp outlines, in its dramatic vigor, and in its contrast to most of the men with whom he was called upon to deal, would seem to lend itself peculiarly well to biographical treatment, and it will hardly fail to be a source of regret to the reader as he finishes this book, that so much of its limited space has been given to matters lying outside the single biographical aim. Of course one sympathizes with the desire of the scholarly writer to give as complete a picture as he can of all the relations into which his hero has to enter; but in a work of which the avowed aim is to bring out the "hero," all detail should be strictly subordinated to the clearness and force of the central figure.

As to the scholarly character of the book one is disarmed at the outset by the very frank statements of the author as to the sources from which he has drawn. He makes no claim to original research of any sort, is confessedly unfamiliar with the Swedish language, and is not an expert, to say the least, in the art of war. He has got his information from the German historians, especially from Droysen, and the great history of Geijer, translated into German, with more or less use of the correspondence of the king. This material has been used intelligently and the conclusions of the learned authors accepted or rejected as they seemed to commend themselves on their merits.

We must heartily approve what the author is willing to call his own "arbitrariness" in the use of foreign names. There is active among us a feeble kind of self-styled "correctness," which prides itself on the use of forms justified perhaps, on etymological principles, but without support in English usage, and it is high time that such a protest as that with which Mr. Fletcher refers to this matter in his preface, were made by every sensible writer. The only guide here is the feeling of the author himself as to just how much "correctness" may be admitted without making his language unintelligible to the kind of readers whom he addresses. Hardly the same approval can be given to our author's literary style. He is a

victim to the desire for picturesqueness, which is a disease of our present historical writing, whenever it shows itself in smartness of language, rather than in the telling choice of situations and in the due proportion of the narrative. No amount of *chic* in the wording can make interesting the marches and counter marches of hostile armies, but on the other hand there could hardly have been better opportunities for really dramatic effect than in describing the detail of the complicated situation in which the King of Sweden on the continent continually found himself. If Mr. Fletcher has not made the best use of these opportunities, nor avoided all the temptations of a ready pen, it may be confessed that these are the gifts of a master, to which he would hardly lay claim. Of actually faulty and careless English there are more illustrations than one would look for.

The career of Gustavus Adolphus has given rise to numerous controversies. They relate to his personal character and to the real motives which inspired his extraordinary activity. Catholic historians could naturally find in him nothing but the wanton disturber of the *status quo* in Europe, an obstacle in that development which, uninterrupted, would in no very long time have secured the control of the empire and of the only faith over all Germany. An extreme Protestant view, on the other hand, would make him the ideal of the Christian hero, actuated by no other motive but the greater glory of God. Between these views there is room for wide diversity, and it is to Mr. Fletcher's credit that he has known how to keep safely away from all extravagances of judgment. He gives greatest weight to the impulses of patriotism and religion, especially the former. Not that he doubts the actual sincerity of Gustavus' piety, but he inclines to think that this motive alone would not have led him across the Baltic if he had not seen in the defeat of the imperial plans in North Germany the only escape for Sweden from the danger of similar aggression. Once in Germany, he could gain the alliance of Protestants, shifting and uncertain as that alliance was, only by making himself the champion of their faith, and without their alliance the emperor could never have been kept away from the dangerous neighborhood of the Baltic. Add to these considerations the love for military glory which seems to have been born in the man, and we have the combination of impulses which best explains the wonderful events of his three brilliant years. In this conclusion

Mr. Fletcher seems to us wholly correct, and his little book can hardly fail to be of service in fixing precisely the debt the world owes to the Swedish hero. Whether his judgment of the reasons which kept Gustavus from reaching Magdeburg in time to save the city is not over partial, may perhaps be doubted.

EPHRAIM EMERTON.

Outline Course of Study in Elementary Science, Manual Training, and Language. A Report of a Special Committee, Presented to the New England Superintendents' Association, November, 1890. Printed for the Association: 1890, pp. 24.

The New England Superintendents' Association has made a notable contribution to educational literature in this pamphlet. It is a report, presented at the November (1890) meeting in Boston, by a committee consisting of Robert C. Metcalf, Clarence E. Meleney and George I. Aldrich. The work of these gentlemen bears the marks of careful attention to the subject; and its thoroughness entitles them to the gratitude of all who are concerned in preparing or modifying courses of study for the public schools. The labor involved is evidently great; the ability of the authors to deal with the subject is unquestioned; the result will be valued by all friends of education: and all this is not the less true if some portions of the course shall be found wholly or in part erroneous.

In the preface two chief aims are announced in selecting studies to be taught in school: (1) "The course of study must include the studies and means of training which develop the greatest amount of mental and moral power;" (2) "Those which throw the greatest amount of light on the environments of life." On the study of nature it is said: "We must not look at nature's forms as specimens whose only interest is their accurate and wonderful structure, and the ingenious adjustment of parts, but as creations whose symmetry of form and harmony of color teach the beauty and glory of the universe, of God. "The teacher is to ascertain (1) what the child knows, (2) what the child can do, and (3) what the child can say," in order to begin the use of his environment as a means for his education: and "The child's development will be marked by the acquirement of knowledge; the cultivation of expression in making, drawing, and language; and the power and facility of applying this knowledge."

It will be seen that this aim is very ambitious; no teacher will be expected to attain the end perfectly; to ascertain all that the child knows and can do or say, is impossible for any teacher with a class of fifty, of course. Nevertheless, to have that aim must always be a help to good teaching. It is well for all teachers to know that all this underlies their work, however imperfectly it may be apprehended.

This "Outline Course" is in four divisions:

I. Elementary Science and Manual Training.—It may be doubtful whether such study as is here outlined should be called science. In the study of botany, for example, the first stages consist of a knowledge of individual plants through the examination of specimens. Under the guide of an experienced teacher this study may be so arranged as to lay the best foundation for the scientific study of botany—the classified knowledge. But the elementary steps are not science. However, the term elementary science may be the best, though possibly misleading.

Manual Training also may be a misleading name for the kind of exercises here outlined, since recent discussions give the term a more specific meaning to some minds. The thing itself here described is not seriously objectionable.

In this division the work of each year is classified under the three heads of observation, expression, and drill. And here it may be remarked that in this division alone, the work outlined for the first year is more than could be accomplished in the whole school time, if it were taken literally and exhaustively, or any thing approaching that. Under "drawing," for example, are the sub-headings, "From typical forms," and "Natural objects"—and this for the first year in school! But it must be constantly borne in mind that we are considering an "outline," from which the superintendent may construct a course of study, and not the course of study itself.

II. Mechanical Drawing and Construction.—This begins at the fourth year; and in each year there are the two parts—"drawing" and "construction." Here also the amount of work is more extensive than can be done consistently with a proper regard for other studies necessary in a common school course—too extensive, that is, if taken for all that the outline may cover.

III. Course of Instruction in Sewing, beginning at the fourth year.—Why not at the third year? Here numerous

specifications are given—not that they must all be followed, perhaps; they are suggested and more or less may be adopted.

IV. Report on Language.—In this division language means words—the expression of thought by words. This fact cannot be made too prominent—that language is the expression of thought. It is the failure to remember this fact that has led to great difficulty in the study of language, and in the ability to use it. Much of the outcry against the study of language would be stilled if every teacher should forbid the use, and prevent the use, of language unless there is a thought to be expressed. Instead of so doing some teachers have punished pupils for not writing when they have nothing to say. The pupils in such cases should rather be commended for their silence. The remedy is in seeing first that pupils have something to say. Then the use of language—the writing of essays—will be both easy and delightful.

In this division two sub-headings are made in both primary and grammar schools: "Oral Language Work," and "Written Language Work." The first of these distinctions is too frequently overlooked. The study of language by oral speech, the training of pupils to speak correctly always, and to speak much, is of far more importance practically than even the training in writing. Even in the advanced studies, in literature, the study of one's own speech in connection with the study of the best writers, may well occupy one fourth of the student's time. One of Harvard's most accomplished professors—whose ordinary conversation is as polished in style as the pages of the best writers—has gained his profound mastery of English in this way. Much more is such a practice needful with young pupils.

But the outline in question must be studied as a whole to be appreciated. This imperfect sketch can give only a faint notion of all the good it contains. If, on more critical and minute inspection, faults are observable in this "Outline," they may easily be avoided by those who are making a detailed course of study by its aid.

A. P. MARBLE.

School Supervision. By J. L. Pickard, LL.D. New York: D. Appleton & Co., 1890, pp. xiv., 175.

Dr. W. T. Harris, in his preface to this book, which forms one of the International Education Series, remarks: "But the

supervision of American common schools has for the most part grown up without profiting by the study of experiments made elsewhere." It might with equal truth be remarked of Dr. Pickard's book, that it has been written without profiting by the results of philosophic investigation. Neither from the scholastic side, nor from the administrative side, does it betray a thorough acquaintance with recent philosophic thought and experiment. And yet it contains much wisdom, and that of an eminently practical kind. It would be strange indeed if a man who has had Dr. Pickard's experience—as superintendent of schools in a large city, as state superintendent, and as president of a college—should not have something to say which is worthy the attention of all who are engaged in the work of supervision. Under the heads of "The Superintendent's Relation to Pupils," "The Superintendent's Relation to Teachers," "Relation of Superintendent to the Board of Education," and other equally obvious divisions of his subject, he has grouped the observations of many years spent in earnest and successful educational work. The book reveals a man wise, patient, amiable, and tactful. To one lacking in these qualities, I do not know of a volume which it would be more profitable to study. To the superintendent who is disposed to be too aggressive, to grasp for too much power, to tyrannize over teachers and pupils, or to assume the airs of an autocrat, it will afford the excellent counsel of moderation. To one who wishes to get the best possible result out of the material that comes to his hand, who desires to make everybody happy, from the president of the board of education to the youngest pupil, who is a reformer but not an iconoclast, it is replete with wise and fruitful suggestions. But to the man who sees that much must be destroyed before he can even begin to build a public school system that will be equally impregnable to external enemies and proof against internal disease, it will afford but little light that is either new or valuable.

In confirmation of this view of Dr. Pickard's work, it is only necessary to cite his opinions on a few of the questions in school administration that are engaging the attention of thoughtful men at the present day. It will not be denied that the appointment and removal of teachers is one of these questions. Dr. Pickard considers two extreme positions: one in which appointments and removals are made absolutely by members of the board of education; the other, in which appoint-

ments and removals are made absolutely by the superintendent. He sees the objections to either of these plans clearly enough. He considers that want of time—but a small part of the real objection—is a sufficient objection to the first scheme, and that the personal danger to a conscientious officer or the danger to the school system from the work of one who is time-serving, is enough to invalidate the second. But what does he recommend? "The superintendent," he says, "should be a member of this committee (on teachers), and through it his power will be exercised." And again, "Were his hand hidden in the committee over whose acts he might possess a controling influence, his services would be retained until the wisdom of his counsel were fully approved." Rather a humiliating position in which to place the superintendent. "Willing to wound and yet afraid to strike," is not the characteristic that should distinguish such a man. The defect in Dr. Pickard's discussion is that he does not know, or has not considered, all possible methods. How to secure capable, trained teachers, is one of the great problems in school administration. Its solution will require a philosophy of which we have as yet scarcely dreamed.

Another instance of inadequate treatment is to be found in the discussion of "moral training." The author sets out by assuming, or rather seeming to assume, that religious instruction should form an integral part of school work, but he states fully neither the arguments for, nor the arguments against, such a position. His admonitions to superintendents to look carefully into the characters of those who apply for licenses to teach, and his suggestions to teachers as to the observance by themselves of the rules laid down for the government of pupils, are good as far as they go; but the treatment throws no new light upon a vexed question; it does not even fully represent the present stage of development in the controversy.

Still another instance might be adduced, in Dr. Pickard's views upon promotions and examinations. The most difficult problem in public school administration to-day, is how to educate children in great masses, as they are to be found in all large cities, and at the same time to afford adequate opportunity for individual development. Toward the solution of this problem, at least in our large cities, but little progress has been made. And though Dr. Pickard presents clearly and pleasingly many suggestions whose value cannot be ques-

tioned, it must still be confessed that we are nearly as far as ever from an ideal system.

Other instances of the inadequacy of this book to meet the demand for a philosophic work on supervision and school organization, might be multiplied; but these are sufficient. Dr. Pickard has written a useful book and a pleasing one; but it is not a great book; it is not *the* book.

W. H. M.

Lessons in Number for Primary Schools. By FRANCIS COGSWELL, A.M., Superintendent of Schools, Cambridge, Mass. Boston: Thompson, Brown & Co., 1890, pp. xv., 140.

Those who are acquainted with the author of *Lessons in Number* will need no assurance that he has made an excellent book. The teacher who desires to make wise use of it will carefully read both the brief preface, in which Mr. Cogswell explains its plan and special features, and the table of contents with the accompanying explanations, directions, and suggestions. The body of the work consists of 140 pages, and a careful examination of them affords ample evidence that the book really possesses the merits claimed for it in the prefatory portions. In distinction from several excellent manuals designed for the use of teachers which have recently appeared, Mr. Cogswell's little book is designed for the use of pupils. While we do not agree with the author's recommendation that its use begin in the latter part of the pupil's first year in school, we think its use may begin as early as it is advisable to withdraw pupils from the study of numbers which may be handled as well as seen. In short, this book may be used as early as it is advisable to use any book whatever. We incline to emphasize the remark of the author that the use of his book should begin after the pupil has been taught the facts of numbers by means of objects. Visitors at German schools are impressed with the logical, and therefore orderly, arrangement which characterizes most of the school exercises. A distinct and definite purpose seems constantly to possess the mind of the German teacher and guides him in the management of his pupils. His questioning, for instance, is not of a haphazard, promiscuous character, but has a clear beginning, middle, and end. Perhaps no criticism upon American teachers is of wider application than that called forth by the

noticeable absence of those qualities which so distinguish the Germans. Is it too much to say that a majority of our own school exercises begin in the middle and leave off at both ends? We have been led into these last remarks by our observation of the very satisfactory arrangement which Mr. Cogswell has made of his subject matter, and we again venture to recommend careful attention to his Table of Contents. Lessons I. to XXXIII. treat of numbers to 10. The first twenty-five pages afford illustrations of all possible combinations; then follow work with concrete numbers, work with abstract numbers, and work with abstract numbers where answers are to be given at sight, there being no conscious process on the part of pupils. This last variety of exercise should have a much more prominent place than it now occupies in most of our schools. To allow pupils to say, 2 and 1 are 3; 3 and 2 are 5; 1 and 6 are 7, instead of instantly naming the results, 3, 5, 7, is not only a useless and extravagant consumption of time, but it defeats one of our chief purposes in the teaching of arithmetic. In the mechanical portions of arithmetic we must accord accuracy the highest place among results to be produced, but rapidity stands as a close second, and rapidity is only secured by producing that sort of mental action in combination of numbers that is best described by the term automatic. The same orderly arrangement characterizes the remainder of the book, but lack of space forbids further detailed comment. The same device, employed by Messrs. Walton and Cogswell in an earlier publication, will be found in the book now under consideration, making it easy for the teacher to multiply vastly the material afforded by a single page. In regard to school books we may say with special truth, "of making them, there is no end." One is at a loss to discover adequate reason for the creation of many of them, but Mr. Cogswell's *Lessons in Number* carries with it quite sufficient evidence of its right to existence.

G. I. ALDRICH.

Evolution of the University.—By GEORGE E. HOWARD, Professor of History in the University of Nebraska. Lincoln, Neb.: Published by the Alumni Association of the University of Nebraska, 1890, pp. 36.

Professor Howard's address to the Alumni of Nebraska University is a broad and suggestive sketch of the whole de-

velopment of the higher education in Europe and America. He shows how the university idea took form in Italy and in France; how it succumbed to the college idea in England; how it attained its most perfect expression in Germany, and how the educational system of America, based on the English, has gradually been penetrated and vivified by German influences.

The central thought of the essay is the relation of the higher education to the needs of the community. In Italy, the purpose of university education was practical from the outset; in France and England it fell under the "thralldom of theology and classicism." In Germany, also, the era of religious conflict converted the university into "gloomy fortresses of sectarianism"; but the movement of secularization, initiated at Halle in 1693, gradually brought them in touch again with the whole social organism. In the higher education of Germany, and to an increasing degree in that of our country, chief attention is given to those matters which concern the state and the community at large.

State support of university education is justified by the interests of the state. If the common school is needed to fit every man for the intelligent use of the ballot, the university is needed to fit men for the wise and conservative guidance of our democratic polity.

MUNROE SMITH.

Notes on Recent Pedagogical Literature.

NATURALISM IN PEDAGOGY: A Thesis presented for the Degree of Doctor of Philosophy in the Post-Graduate Department of the University of Wooster, June, 1890. By Henry Elton Kratz, A.M., Ph.D. Wooster, O.: The Herald Printing Co., 1891, pp. 14.

This brief thesis is suggestive and important by reason of the insight which the author has into the weakness and limitations of Naturalism as a pedagogical creed. He touches on the history, the phases, the helpfulness, and the insufficiency of Naturalism. The argument is clear, but almost too compact.

THE UNIVERSITY OF CHICAGO: Official Bulletin, No. 1. Chicago, Ill.: January, 1891, pp. 16.

This pamphlet is of especial interest to students of higher education. It contains an historical statement as to the foun-

dation of this new institution, a list of the trustees, a copy of the charter, and a detailed outline of the proposed very extensive organization. The latter is the work of the president-elect, Professor W. R. Harper of Yale University. One item of interest is the provision that at all times two thirds of the trustees and also the president of university shall be members of regular Baptist churches. If no religious test is ever to be made requisite for admission to the university, whether as teacher or as student, it is difficult to understand why the provision mentioned is made. Its pedagogic significance is problematical.

UNIVERSITY OF MICHIGAN: The President's Report to the Board of Regents for the Year ending September 30, 1890. Ann Arbor, Mich.: Published by the University, 1890, pp. 40.

During the year the very large number of 2159 students were enrolled. Of these 1009 were in the department of literature, science, and the arts; 375 in the department of medicine and surgery, and 73 more in the homœopathic medical college; and 533 in the department of law. Less than one half of all the students come from the state of Michigan. Forty-three of the states and territories are represented. The receipts for the year amounted to $360,308.16, of which $111,162.75 was earned by the university. The appropriations from the state treasury amounted to $233,512.58.

President Angell touches on the subject of the shortening of the college course. He believes it to be both possible and desirable to shorten the time necessary to take both an undergraduate and a professional course. He prefers the method of permitting an undergraduate to elect as part of his work for the bachelor's degree, certain of the preliminary professional studies. During the last decade the average age on admission to regular courses has been reduced from 19–19½ to a trifle over 18 years. This decrease is ascribed to two causes: the improvement in the high schools, and the better financial condition of the parents, which enables the students in larger proportion than formerly to go to college without waiting to earn the means of defraying their expenses.

N. M. B.

VIII.

EDUCATION IN FOREIGN PERIODICALS.

Dr. J. G. Fitch, on Secondary Education in England.

FROM A REPORT IN THE "EDUCATIONAL TIMES" OF AN ADDRESS BEFORE THE LONDON COLLEGE OF PRECEPTORS.

"Our schools, like the other institutions of our country, are the product partly of history and tradition, partly of accident. We have inherited some of them; some have been established to meet local circumstances or the wants of particular professions or religious communities; others are the result of private enterprise. Scarcely any attempt has been made to co-ordinate them, or to assign their relations to each other. Before the Reformation, when education was the privilege of the rich, there were mainly two forms of discipline: that of the cloister and that of the castle or the manor-house. The young squire or nobleman was sufficiently educated if he could ride and hunt, and was skillful in athletic exercises and in the performance of the arts of war. Very little book knowledge was accessible to the country gentleman, or would have been desired by society or himself. . . . . And when the Restoration came and the Act of Uniformity had been followed by the secession of those Puritans who for the first time in our history were called Nonconformists, and when the Toleration Act of William and Mary had been reluctantly granted and had obliged English Churchmen to recognize Dissent as a permanent factor in the social system, wealthy and benevolent people began to be sensible of a new danger and to take a new view of the educational requirements of their countrymen. The Church of England and the whole fabric of social order with which the establishment was identified, appeared to be in peril, and it was thought that schools of a new type, designed for the poorer classes,—schools in which special pains were taken, by church attendance, by catechism and liturgical teaching,—might, if liberally endowed, prove the means of attaching scholars to the Established Church. Hence it was that at the end of the seventeenth century, and for a considerable portion of the eighteenth,

nearly all the beneficence of the promoters of education was directed to the foundation of charity schools. Their educational aims were very low, reading, writing, and the catechism, forming the staple of the instruction; the scholars were clothed in a charity dress, and were taken diligently to church; and if prizes or funds for the advancement in life of the scholars were by the liberality of the founders attached to the school, they were always devoted to the purpose of apprenticing boys or putting girls out to service. They never provided for the possible advancement of a promising scholar to the university or other place of higher education. The notion of a ladder from the cottage to the university which had prevailed in earlier times, and which has been revived in our own, was not in the mind of the founders of charity schools. The whole aim of these schools was to keep the scholars in the state of life in which they had been born, and to make them content with the established order in church and state, not to encourage intellectual ambition." For our present purpose, it is expedient to remember that schools of this class did nothing, and were meant to do nothing, for secondary instruction; and that, as they multiplied during the eighteenth century, zeal for the promotion of a liberal education by means of grammar schools was relaxed in proportion. As a matter of historical fact, no very important foundation for higher education owes its origin to that period.

The very word "clerk," with its ambiguous modern meanings, may remind us that the power to write was in England once regarded as the special prerogative of the clergy or of those who were educated in monasteries. A few of the laity were, even in the fourteenth and fifteenth centuries, admitted to the monastic schools, or to the charity schools attached to abbeys and cathedrals; and in the cathedral towns, Carlisle, Winchester, and Salisbury, grammar schools were founded before the end of the fifteenth century. The royal foundation of Eton owes its origin to Henry VI. But it was at the Reformation, and after the Revival of Learning, that the endowed grammar schools became common, and began to be numerous and vigorous enough to exert a substantial influence over the intellectual life of England. It may suffice here to name, with their dates, a very small number of the most famous of these foundations: St. Paul's (1510); Sherborne (1550); Shrewsbury (1551); King Edward's School at Birmingham

(1552); Christ's Hospital (1553); Tonbridge (1553); Westminster (1560); Merchant Taylors' (1561); Harpur's School at Bedford (1566); Rugby (1567); Harrow (1571); Uppingham (1587); the Charterhouse (1611); and Dulwich (1619). By the end of the seventeenth century there were in England no less than 620 of these institutions. They constituted the only provision which can be described as of a public kind for the education of the nation. The funds with which some of them were enriched were the spoils of the dissolved monasteries; many other schools had a distinctly ecclesiastical character. And it is largely owing to this fact that the traditional ideal of a liberal education which still prevails in England, attaches so high a value to the ancient languages. There is no other nation known to me whose intellectual history has been so profoundly influenced by its possession of educational endowments four or five centuries old; and there is none in which the aims and methods of mediæval teachers have been more reverently followed, or in which the continuity of tradition and usage in reference to learning has been so carefully preserved. The grammar schools were by their statutes enjoined to make the Greek and Roman classics their staple study; for the very excellent reasons that these were then the only studies which had been so far formulated and systematized as to possess a disciplinal character, that they were the keys to open the storehouses of all the knowledge the world then possessed, and, further, that they were the only subjects which the teachers of that time had themselves been able to learn. Most of the grammar schools were intimately connected, either through their governing bodies or by means of scholarships, with the universities. It was their highest pride to produce pupils able to proceed to Oxford and Cambridge, and to distinguish themselves there; and, as a rule, the founders in their deeds and testaments expressed a generous desire to make the schools accessible to students of all ranks, and to enable the child, even of the peasant or the trader, if he were apt and godly, to become a scholar and to "serve God in church and state." And if it has come to pass that in England, perhaps more than in any other land, a man who is proficient in the Greek and Latin languages, claims *par excellence* to be called a scholar; while one who possesses the widest and most philosophical acquaintance with other departments of human knowledge, but knows nothing of classics, hardly ranks as a liberally

educated man; we are to attribute this fact mainly to the existence of the grammar schools, and to the tenacity with which Englishmen have clung during several centuries to the statutes and ordinances of these institutions.

We must note, however, that the fashion of establishing grammar schools with a view to encourage the pursuit of a liberal education may be said to have almost died out by the end of the seventeenth century. The time of the Civil War and of the Commonwealth was not favorable to such intellectual enterprise, for the dominant party was not keen about the promotion of secular learning; and the beaten party was too seriously impoverished by the war to command the means of endowment. . . . . Meanwhile it is to be observed that whatever was done for secondary education was done by private initiative, with the co-operation of the universities; or by the efforts of parents who could afford private tuition. . . . .

The first symptom of any interest on the part of the legislature in the whole subject was the measure carried through against some opposition by Lord Brougham in 1818, instituting a commission of inquiry into the state of endowed charities, especially those connected with education. The investigation lasted several years, and resulted in the production of several enormous volumes containing detailed particulars about such charities. But it was essentially a lawyers' inquiry. It ascertained the terms of the original deed of foundation, described the nature of the trust property and its present value, told the names of the trustees and of the head-master, and reported that the will of the founder was or was not carried out. It was no part of the commissioners' duty to ascertain the educational efficacy of the schools or their fitness to supply the present wants of the community. Still less was it within the province of the commissioners to propound new schemes, or to make recommendations with a view to make the schools more useful. . . . . The next step of importance was the appointment in 1864 of the Royal Commission of which Lord Taunton was chairman. . . . . It was called the Schools Inquiry Commission. . . . . The Schools Inquiry Commission was charged with the duty of reporting on the whole of the educational area which was bounded on one side by the primary school and on the other by Eton and Harvard and the other of the nine public schools. The investigation was elaborate and extended over nearly four years. . . . . The late Bishop Fraser visited

America, and Mr. Matthew Arnold wrote his memorable Report on the Secondary Instruction of France and Germany.

The information thus accumulated was afterward summarized in a final report. So far as England and Wales were concerned, it amounted to this: the provision for intermediate and higher education was made up: (1) of endowed grammar schools; (2) of proprietary or joint-stock establishments; and (3) of private schools. . . . . The commissioners reported that a very large proportion of the endowed grammar schools were in a lamentable condition of decay and uselessness, that they were very poorly attended, that they neither gave to any good purpose the instruction in the ancient language contemplated by the founders, nor had done anything, by way of compensation, to adapt themselves to the needs and circumstances of modern life. . . . .

As to the proprietary schools, some designed for the children of persons of particular communities and professions, and others which had been founded by religious bodies—*e. g.*, the Friends' schools and the Wesleyan proprietary schools—were found to be flourishing, and to be well supported by the efforts of the persons specially concerned. But of those proprietary schools, which had been established simply as places of general education, a good many had succeeded for a while, but had fallen into difficulties, owing to the want of any financial stability, or any means for maintaining a permanent policy in the government. It happened, especially in my own district, that some of the best examples of modern educational enterprise had been created by private schoolmasters. But it could not be denied that, as a rule, the condition of the private schools was profoundly unsatisfactory, that the teachers were often ill-qualified, the methods of instruction antiquated and unintelligent; and the work, being never subjected to any external test or comparison, went on from year to year in a monotonous groove, and was probably less efficient than even the most conscientious of the teachers supposed it to be. . . . .

The remedial measures which the commissioners proposed for this state of things were very drastic and far-reaching. They made a series of proposals, the adoption of which was to be partly obligatory and partly permissive. They recommended that a beginning should be made with endowed schools, that they should be properly graded, their schemes of

instruction modernized, their governing bodies reconstructed on a more popular basis; the freehold tenure of the masters abolished, suitable fees imposed; all rights of personal nomination and patronage abolished, and a portion of the endowment reserved in every case for free scholarships or exhibitions, enabling scholars of merit either to receive gratuitous instruction in the school or to proceed to the university or some place of higher instruction. . . . . This report, issued toward the end of 1867, produced considerable effect on public opinion, and it happened that the following year witnessed the accession to power of one of the strongest administrations of recent years—that of Mr. Gladstone in 1868. He appointed as vice-president of the council Mr. W. E. Forster, who had himself been an active member of the Schools Inquiry Commission, and to whose courageous and skillful statesmanship the country was indebted two years later for the Elementary Education Act. Early in 1869 he introduced the Endowed Schools Bill in two parts. The former of these proposed to create a new tribunal with executive powers. It was to be the duty of this body—the Endowed Schools Commission—to frame schemes for the reorganization of all educational endowments; and, if the consent of the local trustees could be obtained, to apply non-educational charities to educational purposes. The second part of the bill proposed the formation of a council, to consist of representatives of the three universities, of Oxford, Cambridge, and London, and six persons to be nominated by the Crown, with powers (1) to examine persons deserving recognition as teachers, and to award to them professional diplomas; (2) to examine and report on the condition of all endowed schools; (3) to keep a register of all qualified teachers; (4) to admit such schools as might apply for recognition to similar examinations to those provided for endowed schools; (5) to allow the scholars of all such private or unendowed schools to compete for exhibitions and scholarships. . . . . But of the measure which Mr. Forster introduced he was able to carry the first part only. Very unwillingly he yielded to the objections which were urged against so revolutionary a measure, and the second part of the bill was dropped. But the establishment of the new commission was a substantial step in advance. Under the Endowed Schools Act, the administration of which five years later was confided to the Charity Commission, specially strengthened

for this purpose, great results have been attained. All over the country schools have been reconstituted, governing bodies reformed, the curriculum of instruction modernized, freehold masterships abolished, the funds duly economized, and suitable fees imposed; and although the work is not yet completed, the beneficial action of the commission has already covered the country with regenerate foundations, and given to them new resources and new vigor, and set them on a new career of honor and of public usefulness. A select committee of the House of Commons sat in 1886 to inquire into the working of the Endowed Schools Act, and collected the strongest testimony from all sides of the value of its operations. Its report pointed out, indeed, that it was one thing to frame good schemes, and another to secure the enforcement of them; and it was recommended that power should be given to a Minister of Public Instruction to perform this latter duty, and to bring into harmony the several parts of our educational machinery, which are at present scattered and divided.

The Endowed Schools Act is the one measure on the statute book which concerns the secondary education of the people. No subsequent step has been taken by the legislature. And in this respect our country differs materially from almost every civilized nation which attaches any value to intellectual advancement. . . . .

Whatever has been done—and much has unquestionably been done since the Act of 1869—has been the work of private and independent bodies without any help or encouragement from the state. The institution of the Oxford and Cambridge Local Examinations has had an enormous effect in quickening the energies and improving the aims of teachers. Similar results have followed from the widely spread system of school examinations conducted by this college. The establishment at Cambridge and in London of a training college for the mistresses of high schools, the endowment at Edinburgh and St. Andrews of Professorships of Pedagogy, the institution by both the Cambridge and London universities of special examinations in the Art, Theory, and History of Education, and the courses of professorial lectures at Cambridge and the College of Preceptors, have called public attention to the need of special training for the teacher's office, and have helped to supply that need.